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THE FLOOD CONTROL PROGRAM OF THE DEPARTMENT OF AGRICULTURE

REPORT

TO THE

COMMITTEE ON PUBLIC WORKS

HOUSE OF REPRESENTATIVES

BY MR. JONES OF ALABAMA

FROM THE

SUBCOMMITTEE TO STUDY CIVIL WORKS

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THE FLOOD-CONTROL PROGRAM OF THE DEPARTMENT OF AGRICULTURE

Current Flood-Control Projects

The Department of Agriculture undertook its responsibility for flood control contemporaneously with the Corps of Engineers under the Flood Control Act of 1936. The Department of Agriculture was placed in charge of upstream areas and authorized to initiate a program which was intended to reduce damages caused by floodwaters, erosion, and sedimentation to the watershed agricultural lands, to alleviate similar damage downstream, and to check the silting of the corps' mainstream reservoirs.

World War II disrupted Agriculture's program before it had developed much beyond the planning stage. Since 1936, Congress has authorized the Department to make preliminary investigations and surveys on 1,082 watersheds, but it was only the 1944 Flood Control Act that authorized actual works of improvement.

Preliminary examination reports of only 178 watersheds have been made, and of these reports 148 recommended that surveys be made. Some 30 of these recommended surveys have been prepared and forwarded to Congress. This work has been financed by $18,000,000 of appropriations. Twenty-three of these reports recommended works of improvement, and seven did not. Eleven programs were approved by the Committee on Flood Control and authorized for construction under the Flood Control Act of 1944. Two reports are now pending before the Committees on Agriculture, and 10 are before the Committees on Public Works.

The Department reports that more than 50 surveys are sufficiently advanced so that reports on them may be completed in the next several years. Table 1 indicates the total estimated costs of the 11 authorized watershed projects and the cumulative Federal obligations through fiscal year 1951.

Table 1.—*Authorized watershed improvement programs*

Watershed and total number of years to complete installation	Total estimated Federal cost of authorized improvements		Estimated cumulative Federal obligations through fiscal year 1951
	Costs as authorized, Flood Control Act, 1944 (as modified)	Latest estimated costs	
Buffalo Creek, N. Y.[1] (18)	$2,581,400	$4,517,450	$840,209
Colorado, Middle, Tex. (20)	2,693,000	4,712,750	678,604
Coosa, Ga. and Tenn. (20)	1,233,000	2,157,750	402,008
Little Sioux, Iowa and Minn. (15)	4,280,000	7,490,000	3,807,634
Little Tallahatchie, Miss. (20)	4,221,000	6,856,500	1,121,868
Los Angeles, Calif. (10)	8,380,000	16,399,250	4,631,517
Potomac, Md., Va., Pa., and W. Va. (24)	859,000	1,431,000	401,760
Santa Ynez, Calif.[2] (10)	1,592,500	1,831,500	946,971
Trinity, Tex. (15)	32,000,000	55,999,000	4,649,816
Washita, Okla. and Tex. (15)	11,243,000	19,675,250	4,478,471
Yazoo, Miss. (20)	21,700,000	31,024,250	1,551,616
Total	90,782,900	152,094,700	23,510,474

[1] Buffalo Creek—$739,000 original estimate; increased by Flood Control Act of 1946.
[2] Santa Ynez—$434,000 original estimate; increased by Flood Control Act of 1950.

Congress allowed in full the flood-control budget estimate for the fiscal year ending June 30, 1953, and appropriated $7,750,000 for flood-control purposes. It was stipulated, however, that $7,000,000 of this was to be used for works of improvement and only $750,000 for preliminary examinations, surveys, and basin investigations. This requirement was the result of a conference agreement that actual works of flood prevention should be given preference over surveying.

This decision resulted in a $1,400,000 cut from $2,150,000 for survey funds requested by the Department of Agriculture in its 1953 budget estimate. The following table gives a breakdown of the budget estimate for surveys and the actual appropriations:

Flood prevention, Department of Agriculture

Year	Preliminary examinations and surveys		General basin investigations	
	Budget estimate	Appropriation	Budget estimate	Appropriation
1953	[1] $1,700,000	$580,000	$450,000	$170,000
1952		[2] 1,677,643		250,000
1951		1,619,567		
1950		1,746,450		

[1] Includes $500,000 for assistance to the Missouri River Basin Commission.
[2] Includes supplemental appropriation of $186,800 to accelerate survey work in the Missouri and upper Mississippi River watersheds.

Both the Forest Service and the Soil Conservation Service strongly objected to this cut in survey funds and transfer of the amount requested to works of improvement in testimony before the Senate Subcommittee on Appropriations after it was learned that the House proposed to make the shift. The Forest Service claimed that it would have to curtail its surveys considerably in major drainage basins and would have to release about one-half of its personnel who were engaged in the planning phases. The Soil Conservation Service voiced similar predictions that curtailments in surveys would be necessary. The Soil Conservation Service also stated:

> The slowing down of the survey activity will further delay the possibility of action by Congress to authorize initiation of works of improvement for flood prevention on watersheds in critical areas due to the additional time required to complete such surveys.

The Department further opposed the cut in the basin investigation planning from the $450,000 called for in the budget estimate to the $170,000 appropriated. Department personnel explained the need for funds for the coordinated basin planning being undertaken on the Arkansas-Red-White Basin and the New England region by the Departments of Agriculture, Interior, and Commerce; the Corps of Engineers; the Public Health Service; and the Federal Power Commission.

The Department in its objection to any transfer of funds from general basin investigations to construction work, pointed out that—

> If this Agriculture work on the upstream areas is to be done when it should be done, before the downstream works are constructed, then it is very important that the planning work on the agricultural areas be done concurrently, at least, with the planning for the work downstream.

This decrease in survey funds becomes important as a factor in the Department's coordination with the Corps of Engineers. The Corps has repeatedly objected to the lack of detail in the survey reports of the Department and the Department's unwillingness to enter into extensive collaboration with the corps' planning in the same basins. This lack of coordination, which shall be later discussed more specifically, has been attributed by some members of the Department to the lack of adequate survey funds. The Department claims that it cannot afford to conduct expensive detailed and coordinated surveys with the Corps of Engineers on projects which may never even receive congressional authorization.

TABLE 2.—*Appropriations to Department of Agriculture for flood-control activities*

Appropriations act	Preliminary examinations and surveys	Projects works of improvement	General basin investigations	Total
1. Act of July 19, 1937 (Public Law 208, 75th Cong., 1st sess.)	$500,000			[1] $500,000
2. Act of June 11, 1938 (Public Law 591, 75th Cong., 3d sess.)	3,000,000	$4,000,000		[1] 7,000,000
3. Act of June 28, 1939 (Public Law 154, 76th Cong., 1st sess.)	3,000,000			[1] 3,000,000
4. Act of June 24, 1940 (Public Law 653, 76th Cong., 3d sess.)	2,000,000			[1] 2,000,000
5. Act of May 23, 1941 (Public Law 71, 77th Cong., 1st sess.)	998,342			[1] 998,342
6. Act of June 22, 1946 (Public Law 422, 79th Cong., 2d sess.)		2,100,000		2,100,000
7. Act of July 30, 1947 (Public Law 266, 80th Cong., 1st sess.)	952,020	[2] 47,980		1,000,000
8. Act of July 31, 1947 (Public Law 299, 80th Cong., 1st sess.)	100,000	1,900,000		2,000,000
9. Act of June 19, 1948 (Public Law 712, 80th Cong., 2d sess.)	1,817,047	4,182,953		6,000,000
10. Act of June 29, 1949 (Public Law 146, 81st Cong., 1st sess.)	1,771,105	7,728,895		9,500,000
11. Act of Sept. 6, 1950 (Public Law 759, 81st Cong., 2d sess.)	1,643,372	4,471,628		[2] 6,115,000
12. Act of Aug. 31, 1951 (Public Law 135, 82d Cong., 1st sess.)	1,550,858	4,571,942	$250,000	6,372,800
13. Act of Nov. 1, 1951 (Public Law 254, 82d Cong., 1st sess.)	186,800			186,800
14. Act of July 5, 1952 (Public Law 451, 82d Cong., 2d sess.)	580,000	7,000,000	170,000	7,750,000
Total	18,099,544	36,003,398	420,000	[2] 54,522,942

[1] Funds provided by transfer from the Corps of Engineers.
[2] Excludes reduction of $4,200,000 made pursuant to sec. 1214 of the General Appropriations Act, 1951.

AUTHORITY FOR WORK

When Congress first recognized flood control as a national problem, watersheds as well as waterways were held to fall within the jurisdiction of Federal Government flood-control operations. The Flood Control Act of June 22, 1936, authorized investigations and improvements "of navigable waters or their tributaries, including the watersheds thereof, for flood-control purposes," provided the benefits exceeded the costs or human lives and security were endangered.

Under this act the Congress designated the Corps of Engineers to be in charge of flood-control works on the waterways or main streams. "Federal investigations of watersheds and measures for runoff and water-flow retardation and soil-erosion prevention on watersheds" were placed by the 1936 act under the jurisdiction of the Department of Agriculture. The Department was authorized to make preliminary

examinations and surveys in the watersheds of the rivers on which the corps was also operating. The 1936 act, as amended and supplemented, called upon the Department to make the 1,082 surveys previously cited "for runoff and water retardation and soil-erosion prevention on the watersheds" of the designated localities.

The Department distinguishes its flood control from its other programs in that the former deal only with works whose purpose is the reduction of floodwater and sediment damages. Other acts pertaining to the Department give its Soil Conservation Service, Production and Marketing Administration, and Forest Service broad authority to construct or make payments for soil-erosion prevention measures, most of which have a direct bearing on water flow. The delineation between the flood-control measures and other activities of the Department never has been made very clear.

The Flood Control Acts of 1939 and 1941 continued the authority of the Department and added to the list of localities in which preliminary examinations and surveys were authorized to be made. The act of 1944, however, significantly called attention to the fact that congressional policy was "to facilitate the consideration of projects on a basis of comprehensive and coordinated developments." This act also expanded the meaning of "flood control" to include "channel and major drainage improvements," but the Department considers that this applies only to the activities of the Department of the Army and not to the watershed programs of the Department of Agriculture.

As reports were submitted to Congress, interested parties requested reviews of the original reports on the grounds that additional data had become available on the reports. Thus, the act of 1948 endowed the Public Works Committees of the House of Representatives and of the Senate with authority to have the Secretary of Agriculture make such supplemental or additional reports or estimates as desired.

Authorizing Procedures

The flood-control acts name the localities for which preliminary examinations and surveys are authorized. On these watersheds the Department first conducts a preliminary examination, or a local reconnaissance, to determine the feasibility of a program for water-flow retardation and soil-erosion prevention and whether such a program warrants further study. Projects considered feasible by the investigating bureau (Soil Conservation Service or Forest Service) are submitted to the Secretary, who in turn establishes priorities for surveys as the funds become available. Adverse reports of preliminary examinations are submitted to Congress.

Reviews of reports submitted to Congress may be authorized by resolution of the Committee on Public Works of either the House or Senate.

The survey reports are cleared through the Bureau of the Budget and then submitted to the Congress by the Secretary, where they are generally referred to the Committees on Public Works. Authorization of projects has thus far been officially given in the flood-control acts. The timing and extent of the projects authorized are determined by the availability of appropriations.

Minor changes and modifications in the program described in the survey report may be made by the Department. Major changes,

however, are not considered authorized to be made by the operating bureaus without prior congressional approval. Such major modifications would involve unusual physical changes in the watershed, new technical developments, or significant economic changes.

The survey reports which are submitted to Congress include, in addition to an analysis of the proposed watershed program, a letter of transmittal from the Secretary, accompanied by letters of review by the interested Federal agencies, such as Bureau of Reclamation, the Corps of Engineers, the Federal Power Commission, and the Federal Security Agency. These letters will be considered in greater detail in the discussion of interagency coordination.

Flood-Control Programs

The underlying theory behind the Department of Agriculture's watershed program is that the upper basins should be created so far as possible into a vast sponge which would absorb brief deluges or continued rains and thus not only alleviate floods downstream but prevent the eroding of valuable upstream farm land. The Department defines the works of improvement which are to bring about flood control in terms of (1) land-treatment measures and (2) supplemental small-watercourse measures. The combination of these programs is all encompassing and carries the concept of flood control far beyond the engineering stage. The Department's official position on the extent of its program appears in the statement of the Department of Agriculture Solicitor that—

> We believe [the term "works of improvement"] is broad enough to include such things as fire-control operations, cover improvement, channel barriers, and farm treatment. The operations program can involve engineering operations, methods of cultivation, the growing of vegetation, and changes in land use, insofar as they have a bearing on flood control. (Op. Sol. 2253.)

The land-treatment measures are on-the-soil programs such as revegetation, terracing, and strip cropping, and also include forestry and range management. These measures are of the same type as those being carried out through the broad national programs administered by the various bureaus of the Department of Agriculture. The purposes of flood control and soil-erosion prevention and greater productivity cannot be easily separated, and about the only distinguishing feature appears to be that the flood-control land-treatment measures are conducted on a watershed basis rather than on a basis of county, State, or Federal Government subdivisions, such as soil-conservation districts.

The so-called supplemental small-watercourse measures, which the subcommittee considers as structural measures, store water, stabilize channels, and control sediment. They include small earth-filled retention dams, gully control dams, and vegetal floodways.

The magnitude of the flood-control program being initiated and proposed by the Department of Agriculture is shown in the plan for development of the Missouri River Basin. This plan was submitted to Congress in September 1949 as the Missouri River Basin agricultural program; and, in response to specific resolutions of the Public Works Committee, a supplemental report was submitted in July 1952. Both reports were referred to the Committee on Agriculture. The entire program of land treatment and watercourse measures is ex-

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pected to take over 30 years to complete at a cost of about $8,500,000,000, at 1949 prices, of which about $3,000,000,000 will be borne the Federal Government, with $1,000,000,000 allocated to flood control. The watershed program for flood and sediment control calls for about 16,000 small upstream floodwater-retarding structures, about 500 sediment-retention structures, between 4,500 and 5,500 miles of minor floodways, between 10,000 and 12,000 miles of small-stream channel improvements, between 750,000 and 850,000 stabilizing and sedimentation-control measures for gullies, between 180,000 and 200,000 miles of subwatershed waterway improvements to stabilize channels, and between 60,000 and 70,000 miles of small diversion ditches and dikes.

The extent of the Department of Agriculture's programs and the relationship of the flood-control work to the going national projects of soil conservation was explained to the subcommittee by Secretary of Agriculture Charles F. Brannan. Secretary Brannan testified:

> The aim of the Department through the soil, water, and forest conservation programs which it administers is to develop, improve, conserve, and wisely use the Nation's land and water resources to achieve agricultural productivity adequate to our food and fiber needs and consistent with the maintenance of our basic resources for production. Although these Nation-wide programs in themselves reduce flood damages and help to control reservoir silting, etc., these benefits are not the primary objectives.
>
> On the other hand, the watershed programs that are being formulated and carried out by the Department under the authority of the flood-control acts—and which are designed specifically to achieve the maximum practicable degree of reduction of erosion, floodwater, and sediment damages—accomplish their objectives by protecting crops, land, improvements, roads, and bridges in rural areas; reducing sediment damages to reservoirs and harbors; enhancing the productivity of flood-plain lands; improving the quality of water supply; increasing ground-water recharge; and producing more uniform stream flow. We are seeking purposefully to achieve these benefits to the largest degree practicable in keeping with the Nation's need for food and fiber.
>
> This is our first objective. It is the basic core of our watershed programs. To gain this objective, the Department, in formulating its watershed programs, seeks to adapt, intensify, and accelerate proper land use and treatment. In some ways this is similar to what we are doing under the national programs of the Department. But there is a vital difference. In watershed programs we work first on the watersheds with the biggest problems and where there is the biggest local interest in helping to meet them; and in each watershed we design and carry out a program which is properly balanced to give the greatest effects in reducing damages by erosion, floodwaters, and sediment. This procedure insures that necessary improvement work on watershed land is properly timed with the installation of supplemental runoff and waterflow retarding structures.
>
> The fact that we are recommending many of the same kinds of measures in our watershed programs as we advocate in our going national programs seems, however, to have caused some confusion. Actually, there is no inconsistency between the two kinds of programs. The land-treatment measures are the very essence of an adequate watershed program. On the other hand, we want to make it clear that, from a dollar point of view, the benefits from the erosion-prevention measures on the farms and ranches where they are applied—that is, the on-site benefits—measured in terms of increased agricultural productivity, generally outweigh off-site benefits in flood-damage prevention. Nevertheless, total erosion, floodwater, and sediment damage prevention and other benefits that can be achieved by adapting, intensifying, and accelerating the application of land-treatment measures to meet the peculiar needs of each watershed fully justify the recommendations we are making in our watershed survey reports to accomplish this end.
>
> In many watersheds our surveys have shown that land-treatment measures of the kind being generally applied in our national programs are not in themselves sufficient to give the flood protection that is needed and justified. For this reason * * * we have included in our programs supplemental measures for

stabilizing small watercourses and retarding runoff and water flow before it goes down to the major stream valleys.

The rate of installation depends on the availability of funds and local priorities. The survey reports generally recommend a work period of from 10 to 30 years, but the Department of Agriculture believes that, under the rate of annual appropriations experienced for the projects authorized in the 1944 act, this period will be extended to from 30 to 50 years in most watersheds.

In evaluating the feasibility of its projects, the Department states that it employs criteria which insure that the benefits of all parts of the recommended program are greater than the costs. But, while the same benefit-cost ratio is followed in all aspects of its programs, the Department of Agriculture applies different standards of local participation, depending on whether the projects are land-treatment measures or structural. Local groups pay for from 40 to 60 percent of the total cost for the land-treatment measures and also assume full responsibility for their maintenance. The Federal Government bears the bulk of the cost of installing structural measures, although local and State interests participate in supplying materials, equipment, and sites whenever possible. As in the case of land-treatment measures, local people bear the maintenance costs of all structures installed on private lands.

WATERSHED ASSOCIATIONS

Watershed associations have been formed in most of the 11 watersheds in which works of improvement are in progress. These associations, made up of representatives from local soil-conservation districts and other concerned groups, operate to coordinate local ends of planning, installation, and maintenance of the flood-control measures. Agreements are entered into with the Department field offices and with landowners and farm operators concerning disposition of works, local payments, and other steps vital to cooperative operation of the flood-control program. Most of these agreements are entered into on a subwatershed basis. Departmental engineers determine these subwatersheds on the basis of natural drainage areas within the watershed, areas which are also delineated so as to encompass a group of farms having common soil and water problems and of such a size that will facilitate coordinated planning and operation.

INTRADEPARTMENTAL COORDINATION

The Forest Service and Soil Conservation Service of the Department of Agriculture operate within assigned areas of territorial responsibility and are in charge of making preliminary examinations and surveys of watersheds within their respective designated areas. Administrative regulations of the Department, however, provide that the two bureaus shall cooperate at all stages of the flood-control operations. This cooperation includes loan of personnel and exchange of data between the two agencies.

Some direct aid payments are made for land-treatment measures under the flood-control program by the Production and Marketing Administration, but these are handled under the PMA's regular national program. Educational aspects of the program are carried out by the Extension Service in cooperation with the States.

FOREST SERVICE FLOOD-CONTROL PROGRAM

The Forest Service participates in 6 of the 11 watersheds in which the Department of Agriculture is doing flood-control work. Generally the Forest Service assumes the leadership on flood-control projects where the land is predominantly forest, either national or private, or forest range lands. The Forest Service is primarily concerned with preventing watershed lands from becoming a baldpate which can absorb no water or a loose eroded cover which washes away in a heavy rain. This situation occurs when the vegetation is removed or compacted by fire, overgrazing, or excessive lumbering. By increasing the cover with revegetation of grass and trees, the Forest Service increases the carrying capacity of nature's sponge and also stabilizes the soil so that it does not erode and clog up stream channels and reservoirs with sediment.

Land-treatment measures comprise the heaviest load of the Forest Service, but the Service also operates numerous channel structures to retard runoff and stabilize channels. Other retarding structures are built to divert runoff away from gullied slopes and from areas where cover seedings are taking effect. Fire protection operations are also undertaken under the authority of the flood-control acts. These measures include firebreaks, roads, towers, water-storage tanks, stations, trucks, and other heavy equipment.

The Forest Service flood-control operations either are involved in work on public lands, cooperation with State forestry departments, or cooperation with private landowners. Much of the work on private lands is done through the agricultural conservation payments which undertake to pay farmers for forest conservation measures if the farmer voluntarily wishes to enter into the program. In 1950, the last year for which records are available, only $750,000 agricultural conservation program funds were expended for tree plantings on farm lands. This expenditure represents less than 1 percent of available agricultural conservation program conservation funds, and the plantings themselves amounted to an average of 4.1 acres per farm at a cost of about $6 per acre.

A problem caused by the use of agricultural conservation program payments for this purpose of forestry came to the attention of the Committee on Public Works in the joint transmittal letter of the SCS and Forest Service of the Green River watershed, Kentucky and Tennessee, report of the Department to Congress (H. Doc. 397, 82d Cong., 2d sess.). This letter states:

> Concurrence in this report does not constitute endorsement by the Forest Service of the agricultural conservation program payments as the major means of obtaining sound forestry practices on private land.

When questioned at the subcommittee hearings, the then Chief of the Forest Service, Lyle F. Watts, said:

> I think I ought to tell you quite frankly that up to the last couple of years I personally have not been so enthusiastic as some with respect to agricultural conservation program payments.

Watts added:

> I still believe that to get the full degree of forestry will require more than incentive payments.

Watts' objection to placing too much reliance on the agricultural conservation program incentive payment-agreements seems to be based upon their voluntary nature and the fact that the agreements themselves do not run with the land and may be abrogated by a farmer who purchases the land from the one who entered into the agreement.

Looking to the future, Watts expected that about one-third of the benefits accruing from better forestry practices would come from cooperation with State forestry departments, one-third from agricultural conservation program incentive payments, and one-third from public control of practices on private lands. Watts believes that this public control is necessary to prevent an individual landowner from destroying in one move all of the benefits which had been accumulating during the long growth process of the forest crop. The subcommittee sees no reason why these agreements on reforestation or any similar long-range program should not run with the land rather than with the owner.

SOIL CONSERVATION SERVICE FLOOD-CONTROL PROGRAM

The Soil Conservation Service has assisted soil-conservation districts in all 11 watersheds where projects are authorized in planning and installing watershed works of improvement. The SCS has actually been in the flood-control business since 1933, operating under its national program for soil and water conservation, and has functioned both under soil-conservation and flood-control legislation.

Like the Forest Service, the SCS believes in attacking the flood problem where the rains first fall and working downstream until reaching the main-stem jurisdiction of other agencies, primarily the Corps of Engineers. The primary job of the SCS is to provide direct aid and technical assistance through locally organized soil-conservation districts for land-treatment measures. In addition to the land-conservation program, the SCS undertakes upstream water-flow retardation and channel stabilization. Most of these structural measures are earthworks of various sorts which can be built under contract with small local contractors.

The Soil Conservation Service's program was explained in detail to the subcommittee by J. C. Dykes, Deputy Chief of the Soil Conservation Service, as follows:

(1) *Land treatment.*—Land-treatment measures such as contour cultivation, terracing, cover crops, and woodland management prevent erosion, maintain soil fertility, conserve water by storing it in the soil, prevent damage on the farm from erosive action of rainfall and runoff, and reduce the sediment loads of creeks and rivers. Land-treatment measures are already being rapidly installed by landowners under the programs of the locally organized soil-conservation districts aided by technical assistance from the SCS as well as by educational assistance and direct financial aids. The rate of assistance provided needs to be stepped up, however, to achieve more rapid protection of watershed areas.

(2) *Upstream waterflow retardation and channel stabilization.*—This phase of watershed improvement involves work by the Federal Government and cooperating State and local agencies on the tributaries and smaller waterways to control or retard runoff from neighboring farms. These measures, such as small retarding structures, gully plugs, and channel improvements, which are installed largely by contract, alleviate damage to the agriculture of the smaller watersheds above the downstream engineering works. They slow runoff and stabilize sources of sediment in upstream channels. They represent water-control operations over and above what is ordinarily done through the land-conservation job.

(3) *Downstream flood-control measures.*—These are the large reservoirs and levees constructed on the major waterways to control flood flows in the major river valleys. Such measures alleviate urban and agricultural damages from the major floods lower down the main rivers. This work is the responsibility of the Corps of Engineers.

Work plans for 557 subwatersheds have been developed, covering an area constituting about 33 percent of the authorized 11 watersheds. Installations have been completed in two subwatersheds in the Los Angeles watershed and in seven subwatersheds in the Little Sioux. Through cooperation with local watershed associations, the SCS has set up its current work program so that approximately 40 percent of the installation cost will be borne by local interest and 60 percent by the Federal Government.

Survey Reports

When a preliminary examination of watershed indicates that further investigation of the area should be undertaken, the Department of Agriculture bureaus responsible for the watershed prepare a work outline on the type of survey needed and its probable cost. The Department administratively approves the detailed survey, and a staff of technicians is sent into the field as a survey party. It should be again emphasized that the Department in preparing its surveys operates under its dual-purpose program for land-treatment as well as structural measures, and data are assembled in the surveys for the entire watershed soil and water conservation problem.

The information which these surveys seek fall into four broad classes, according to the SCS. These classes are (1) determination of the flood, erosion, and sediment damages by an appraisal of the flood history of the watershed; (2) determination of the watershed's soil, land-use, and plant-cover characteristics and the runoffs these soils produce under different conditions of uses and cover; (3) estimates of the additional measures needed to improve watershed conditions and decrease the runoff volume with allowance being made for the work currently being done by landowners under national Federal assistance programs; and (4) analysis of the effects these measures will actually have in reducing flood, erosion, and sediment damages.

To demonstrate the extent of the Department's surveys, the following table showing the installations recommended in the Pee Dee watershed survey now pending before the Committee on Public Works (H. Doc. 395, 82d Cong., 2d sess.) is inserted at this point.

Table 3.—*Recommended program and Federal cost of installation, Pee Dee River watershed, Virginia, North Carolina, and South Carolina (1946 prices)*

Item	*Total Federal Cost*
Structures: Subwatershed waterways, gully stabilization and sediment control, erosion control along the railroads and roadways, water disposal from hill lands, channel improvements, and streambank stabilization	$3, 914, 000
Permanent conservation measures: Terracing, farm waterways	1, 092, 000
Technical assistance for woodland and cropland	3, 273, 000
Other conservation measures: Field borders, tree planting, woodland improvement and management, adequate fire control, torrent control	1, 754, 000
Other facilitating services: Educational assistance, testing effectiveness of program, land acquisition	3, 605, 000
Total	13, 638, 000

Sampling Method

The Department's surveys which set up systems of reservoirs and land-treatment projects and establish cost estimates and computations of benefits make extensive use of a sampling method. This method perhaps may be best explained by the Department of Agriculture itself in the survey on the Pee Dee watershed.

> The program of runoff and water-flow retardation and soil-erosion prevention recommended in this report was developed from a study of representative sample areas. The present condition of the sample watershed land areas and minor courses was considered in detail to determine the types and quantities of practices and measures that would be most effective in reducing floodwater and sediment damages. The data derived by the sampling procedure were applied to relatively similar areas to estimate total requirements of the most beneficial and practical works of improvement for runoff and water-flow retardation and soil-erosion prevention. (H. Doc. 398, 82d Cong., 2d sess., p. 21.)

This sampling procedure has drawn fire from the Corps of Engineers in its reviews of the Department's surveys on the grounds, as stated in the Pee Dee survey review, that the method does not provide—

> for an accurate determination of costs, locations, and probable effects of flood-storage structures.

A more specific problem was raised by the use of this method in the Brazos River report (H. Doc. 396, 82d Cong., 2d sess.) which recommends construction of approximately 555 floodwater-retarding structures and some 81 miles of floodway and channel improvements. This report does not give the locations or heights of the dams nor details of the channel works. The Chief of Engineers, United States Army, criticized this lack of specific data because it failed to indicate the effect these structures would have downstream where the Corps of Engineers was working. Furthermore, the Chief of Engineers claimed that some of these dams might be of such size as to fall more properly within the jurisdiction of the Corps of Engineers, and thus any possible division between retardation dams and major storage reservoirs should be drawn by the Department in its survey.

The subcommittee recognizes that the sampling method is not only economical but highly efficient when applied to problems such as seeding methods, reforestation, and grass runways. However, the subcommittee does not believe that the sampling method is sound either from an economic or engineering standpoint when applied to major engineering structures.

Modifications Procedure

The Green River report (H. Doc. 261, 82d Cong., 1st sess.) includes the statement that the Secretary may make such modifications or substitutions of the measures provided for in the survey—

> as may be deemed advisable due to changed physical or economic conditions or approved techniques, whenever he [the Secretary] determines that such action will be in furtherance of the objectives of the recommended program.

The subcommittee believes that such latitude would in effect confer on the Secretary of Agriculture blanket and highly discretionary authority to carry out such program as he might from time to time see fit in order to obtain the general objectives of the program. A public-works program must be more precisely authorized if adequate control is to be retained by Congress.

Upstream-Downstream Controversy

The postwar acceleration of flood-control projects by the Department of Agriculture and the Corps of Engineers has not been undertaken in a calm. Indeed, the flood-control problem has been fraught with charges from the Secretary of Agriculture that a grave unbalance existed in river-basin developments, and a conflict over desirable measures for coordination of interagency work in the same basins. Adding further to the confusion has been a torrid battle between upstream and downstream residents over the merits of big and little dams which at times has threatened to envelop unwittingly the two agencies in greater strife.

The upstream-downstream conflict stems from the recent rise of watershed thinking, a concept which considers flood control as a problem which begins where the rain falls on the upper tributaries. The land-treatment and structural measures of the Department have been offered as the answer to the upstream problem; and, working from the thesis that 75 percent of the annual flood damage occurs upstream in the watersheds, the Department and the upstream farmers have endeavored to give protection upstream by making the land more absorptive and checking the runoffs which flood the land and carry off the rich topsoil.

The Department of Agriculture takes the position that floods begin where the rain falls, but they do not claim floods end there. The official Department stand never has been that the upstream works can give full or adequate protection to a river basin and are a substitute for downstream dams and channel works needed to protect urban centers like Kansas City.

The Secretary of Agriculture clearly stated the Department position in his testimony before the subcommittee when he said:

> We know our history, and we know that there were floods in the Mississippi Valley before the white man started plowing up the ground. * * * We say that the two [programs] are complementary and supplement each other and that you need the on-channel structures just as much as you need these [upstream works] for flood-control and flood-prevention purposes alone, not mentioning for the moment the need for this kind of structure from the standpoint of preserving the productivity of our soils.

From the policy point of view there appears to be no squabble between the Corps of Engineers and the Department of Agriculture. Both agencies claim to recognize the importance of each other's works as a means of bringing about total flood control, upstream and downstream; but, although the Department supports the lower-basin projects, it feels that a disparity exists between the amount of attention paid by Congress and other bodies to the two programs which has resulted in a neglect of the Department's upstream schemes. Secretary Brannan bluntly told the subcommittee that—

> There is at present a state of grave unbalance in our river-basin improvements—

adding that—

> this unbalance, characterized chiefly by relative neglect and deemphasis of watershed and upstream problems and improvements, as compared to main-stream developments, must be corrected.

In correcting this unbalance, the Department of Agriculture maintains that it does not seek to bring a halt to the downstream programs but merely accelerate its own projects.

The Secretary insisted—

That, whatever the causes may be, the work on the channels on the main streams has gotten well ahead and very far ahead of the work on the back reaches of the smaller and tributary streams. We must bring them abreast of each other, and we must accelerate the type of work which I described in the Washita wherever the on-channel structures are being built in order to preserve the life of the on-channel structures and in order to make them completely efficient, as they cannot be if this kind of work is not done.

Secretary Brannan objects to the view which he believes is held by members of the Corps of Engineers and Bureau of the Budget that—

It is not necessary to include the Department as a full partner in full membership in flood-control work.

The Secretary claims that these agencies are wrong in suggesting that the Department can do its flood-control job under the regular national programs of the various departmental bureaus.

The Secretary says:

The funds which build these kinds of dams we do not have and never have had, nor the authority to make it available in the amounts and quantities which are necessary to do the full-scale job that has been done in this area. Therefore, it is not sufficient just to say to the Department, "Well, you go on and do your job, and you will catch up with us in due course." We have to be in on the ground at the time it is decided by the Congress that we are going to concentrate our effort in flood control, flood prevention, and preservation of resources in a given area. We simply have to step in and accelerate the work on the areas back of those dams or those dams are not going to be nearly effective or efficient as they were intended to be.

CONFLICTS IN THE FIELD

Behind this top-level display of unity between the upstream and mainstream programs lies a chaotic situation in which farmers indulge in verbal duels with urban dwellers over the respective flood-control plans and try to drag the two agencies into battles in hopes of improving their own position.

The lines never have been drawn very clearly in this battle, largely because of the diversity of the foes. In one camp there is a group of farmers and others who believe in both downstream reservoirs and upstream control measures and simply wish to see them conducted in a comprehensive manner. There are other groups who have no objection to lower river works but who would like to intensify the upstream program. Another body, composed of farmers facing inundation by big mainstream dams, private power affiliated groups, anti-big-anything people, and a band of apparently sincere watershed farmers, claim that the watershed scheme can provide total flood control. At the downstream end of the spectrum are city residents and businessmen who either have no objection to upper river works, provided the mainstream projects are continued, or, in some cases, others who object to any program which detracts even attention, let alone money, from their on-channel structures.

The proponents of watershed projects as the panacea for the Nation's flood ills insist that the upstream little dams can either stop the floods completely or can so delay them that when the flow reaches the cities it can be safely channeled through by levees. One of the most prominent spokesmen for this group, Elmer T. Peterson, has written in national magazines expounding his cause. In the

May 1952 issue of the Country Gentleman Mr. Peterson claims that the so-called big-dam program draws its support from—

> politicians with a keen scent of the pork barrel, a powerful tax-financed bureaucracy, and from hard-hit cities and towns which want protection as fast and complete as possible, regardless of the cost * * * (May 15, 1952, Congressional Record, Appendix A3102).

Mr. Peterson particularly objects to the alleged fact that the big dams would inundate rich bottom land, whereas he claims the same protection could be afforded by a series of little dams located on upstream wasteland.

THE WASHITA CANARD

While the subcommittee considers it out of place for it to examine and report on the accuracy of every piece of propaganda released in the current conflict, one tabulation purporting to compare Army engineers and Soil Conservation Service plans for the little Washita River, Okla., is so misleading and has received such national distribution in popular magazines that the subcommittee feels compelled to discuss it at some length.

This comparison has been widely used by those who propose watershed improvements as a substitute for larger reservoirs and other downstream flood-control works. The comparison arises from the studies which the Corps of Engineers and the Soil Conservation Service have made in the Washita River Basin and are continuing under the Arkansas-White-Red River Basins interagency survey. Other Federal agencies, including the Bureau of Reclamation, are involved in this joint program.

These joint studies involve consideration of both large and small reservoirs. The Corps of Engineers has developed as a preliminary plan a system of 10 reservoirs for the Washita for the protection of some 141,000 acres of land, largely above the main stem of the Washita and along the larger tributaries. The Chickasha Reservoir proposed for the Little Washita is an element of this plan. The Soil Conservation Service has prepared plans for numerous small reservoirs in the Washita; and the preliminary plan of that agency includes 34 small reservoirs, or water-flow retarding dams, in the Little Washita Basin as an alternate to the single reservoir proposed by the corps. At present the two agencies are studying these plans under Arkansas-White-Red survey procedure with a view to developing the most effective and economical plan. The final plan has not yet been developed, and no recommendations have been made by either agency.

Soon after organization of the AWRBIAC, in June 1950, the Washita River Basin, Okla., was selected as a test basin for integration of water resources planning. That selection was made because more basic data were available to the several agencies than in any other comparable area in the Arkansas-White-Red Basins. Investigation of the interrelated effects of those measures ordinarily sponsored by the Soil Conservation Service, the Corps of Engineers, and the Bureau of Reclamation is now under way by a group of specialists representing the Soil Conservation Service, the Forest Service, the Corps of Engineers, the Bureau of Reclamation, the Weather Bureau, the Federal Power Commission, and the State of Oklahoma. As the

study is not yet complete, no conclusions leading to an integrated plan in the basin are available at this time.

Statements ordinarily accompanying the published tabular data indicate that the two programs are competitive in results to be obtained. To some extent in the Little Washita River Basin this appears to be true. In general, however, the two types of programs are complementary; and final studies may show this to be true in the Little Washita when effects downstream on the main stem of the Washita are fully considered. Water-flow retardation, as normally carried on by the Soil Conservation Service, is designed to prevent flood damage to crops and agricultural facilities in small headwater tributaries, where low concentration of values exist. In order to eliminate operation costs, which are inherent in controlled outlets, the small dams are designed with automatic outlets. As would be expected, the greatest degree of flood protection and control is immediately downstream from each dam. Their greatest effect is upon the smaller floods. However, in a given basin-wide storm, the outlet releases may be added to runoff from the uncontrolled areas below the small dams, and flood prevention diminishes progressively downstream. The cumulative effect along main stems of these automatic releases plus runoff from uncontrolled areas may be greater than the main-stem channel can carry. Then flooding results. Main-stem flood plains are usually more extensive than those of small tributaries and hence may contain a high concentration of values, such as a greater percentage of cultivated land and high value crops, urban areas, transportation arteries, utilities lines, etc. This is where large structures are designed to function. Thus, the two programs generally are complementary to each other and are designed to accomplish similar purposes in separate parts of a watershed.

The tabulation as usually presented is as follows:

	Army plan	SCS plan
Number of reservoirs	1	34
Drainage area, square miles	195	190
Flood storage, acre-feet	52,000	59,100
Permanent pool, acres (recreation)	1,950	2,100
Flood pool, acres	3,650	5,100
Bottoms inundated, acres	[1] 1,850	[1] 1,600
Bottomland protected, acres	3,371	8,080
Cost proposed plan, estimated complete	$6,000,000	$1,983,000

[1] Richest bottomland would be covered by Army dams; SCS dams would be largely on wasteland.

While it has been alleged that the figures were submitted as a tabulation of comparative costs by the two agencies at a meeting of its AWRBIAC, the Assistant Chief of Engineers and the Under Secretary of Agriculture have assured the subcommittee that the figures were not so presented by any official of either agency.

It appears that the tabulation was presented by a Mr. E. E. Huff, representing the Chamber of Commerce of Chickasha, Okla., at a public hearing held by the Arkansas-Red-White Interagency Committee in Oklahoma City on December 11, 1950. This was one of a number of public hearings held to obtain the views of local interests. The subcommittee is advised that there was no discussion of the figures when they were presented; and these together with other data

presented at the hearing, were made available to all Federal and State agencies for further study leading toward completion of the interagency report and comprehensive plan for the Arkansas-White-Red Basins.

Originally, the table came to the attention of the subcommittee in two speeches of Elmer T. Peterson of October 11, 1951, before Friends of the Land and St. Louis Farm Club, and of February 16, 1952, before Farmers' Forum, Carnegie, Okla., copies of both of which were furnished the subcommittee by Mr. Peterson and in a third speech he made on December 6, 1951, to Kansas Watershed Association, Topeka, Kans. (published in the Congressional Record, January 24, 1952, p. A390).

The same table was presented as a comparison in Citizens Pamphlet No. 11, The Missouri River Basin Proposals for Development by Marvin Meade, published by the University of Kansas, Lawrence, Kans.; and by Elmer T. Peterson in an article, Big Dam Foolishness, published in the May 1952, issue of Country Gentleman and June 1952, Reader's Digest. Mr. Meade mentions that the figures:

> * * * were submitted by the USDA and the Corps of Engineers before a meeting of the Arkansas-White-Red Interagency Committee recently.

Mr. Peterson says:

> The Chickasha Chamber of Commerce produces this deadly parallel.

in presenting the table.

The table does not constitute a complete presentation of the plan of either agency or indicate the relationship of the figures to the interagency studies now under way for the Arkansas-White-Red River Basins.

The two plans are not properly comparable because they do not propose to accomplish the same purpose.

On this point the Corps of Engineers advises:

> The Department of Agriculture has developed the plan of 34 waterflow retarding structures as a proposed alternative to the single reservoir considered by the Corps. In general, however, the two types of programs are designed for solution of different parts of the flood problem; that is, flood prevention in headwater areas as contrasted with flood control on the main stream and larger tributaries. The interrelationship of these proposals or any possibility using the small structures in lieu of the larger reservoir will be determined by the studies now being coordinated under the Arkansas-White-Red survey procedures. It may be stated generally that in the absence of more detailed engineering studies, the large dam will probably provide more protection to the area below it, than will be possible with the group of small structures. On the other hand the 34 small structures will provide protection in headwater areas that would of course not be affected by the larger dam. The Little Washita Basin is of a size and has topography which permits greater control on the main stream by smaller structures than is found in most river basins.

The Department of Agriculture says:

> The Corps of Engineers' plan proposes a dam on the main stem of the Little Washita River. Probably this dam is designed to reduce floodwater damage occurring in the main valley of the Washita River, as well as in the 6 or 7 miles of flood plain of the Little Washita Valley between the dam and main rivers. Doubtless, it is part of a system of storage designed for the protection of the main valley.
>
> The plan proposed by the Department of Agriculture is aimed at reducing flood and erosion damages within the Little Washita tributary. Only 1 dam of the 34 is planned for the main stem of the Little Washita and that is far upstream in the headwaters. The others are on the numerous small branches of the Little Washita. The land treatment measures, drop inlets, gully control structures,

floodwater diversions and other measures as well as the dams will maintain and improve agricultural production; reduce erosion, sediment, and water damages; and permit more intensive use of the Little Washita River flood plain. Some additional benefits would accrue as a result of reduced flooding and sedimentation in the main Washita River.

In our opinion, while there is a difference in the principal purpose of the two plans, there is also some overlapping of planning. Obviously, both plans as currently proposed should not be installed. Without commenting on the merits of the two proposals, it is evident that the Corps of Engineers' dam if installed would reduce the number of dams to be built by the USDA to about six. On the other hand, if the 34 USDA dams are constructed, it is questionable if the Corps of Engineers' dam would be justified.

According to the Corps of Engineers the figures under the heading "Army plan" for the first five items are figures previously determined by the Army engineers during a study of the Red River Basin which was completed in January 1948. These studies included consideration of a reservoir on the Little Washita, although such a reservoir was not recommended at the time. Under existing interagency arrangements these data were made available to field offices of other Federal agencies and to the State of Oklahoma. The figures, however, do not necessarily represent the improvement that will be recommended by the Corps of Engineers for the Little Washita.

No information is available to the Corps of Engineers as to the source of the following figures:

Bottoms inundated, acres	1,850
Bottomland protected, acres	3,371

The studies of the Corps of Engineers show that the proposed large reservoir would provide a high degree of protection to the Little Washita Valley below the dam, comprising over 4,500 acres, and varying degrees of protection to the area on the main stem of the Washita, comprising about 47,300 acres, downstream from the mouth of the Little Washita.

Information obtained in connection with the Arkansas-White-Red studies shows that some 8,080 acres are presently subject to flooding in the Little Washita Valley. This figure appears to be that given by the author of the comparison for "bottom land protected" under the "SCS plan." The same Arkansas-White-Red information showed that with land-treatment measures applied and proposed waterflow retarding structures in operation, the following conditions would prevail:

	Acres
Permanent pools of structures	1,584
Protected	3,381
Still subject to flooding	3,115
Total	8,080

It appears that the author of the comparison either used the 8,080-acre figure without knowledge of its meaning, or was referring to protection during storms of very small magnitude.

The final cost estimate for the large reservoir has not been determined. It should be noted, however, that any cost estimates compared should be fully comparable, and include such items as construction, land, relocations, and overhead. Such costs are influenced largely by design criteria which vary widely as between larger reservoirs and small uncontrolled waterflow retarding structures or reservoirs. Where life or substantial property values, including urban

areas, traffic arteries and utilities would be seriously affected by failure of structures, positive control of floods is necessary by use of more conservative standards of design and fully regulated outlets. In other areas, which are primarily agricultural in character, or where life and high property values would not be seriously affected by a failure, less positive control and a lowering of design standards would be justified. These matters would be reflected in costs of the two types of program and would have to be considered in a true comparison. Until the interagency studies are completed and coordinated, it will not be possible to compare plans of control or costs.

The Department of Agriculture has made the following comment on the figures:

The table does not constitute the whole presentation. Further, there are some errors in the table as it relates to the tentative program proposed in the Department's review report on a survey of the Washita River watershed. A comparison of the figures in the table with those from the current tentative plans for the Little Washita River is:

	Table	Current survey figures
Number of reservoirs	34	34
Drainage area (square miles)	190	190
Flood storage (acre-feet)	59,100	[1] 59,108
Recreation (permanent pool, acre-feet)	2,100	[2] 2,082
Flood pool (acre-feet)	5,100	[3] 5,076
Bottom inundated (acres)	1,600	[4] 1,464
Bottom protected (acres)	8,080	[5] 8,080
Cost, proposed plans, comp	$1,983,000	[6] $1,973,307

[1] This is the storage volume of the detention pools.

[2] The figure 2,082 is the total surface area in acres of the permanent pools. These provide 19,115 acre-feet of storage. This storage is designed to store a 50-year accumulation of sediment. The purpose of the permanent pools is not for recreation although they can be used to provide limited recreation facilities until they are filled with sediment.

[3] The flood pools provide 59,108 acre-feet of storage. The figure 5,076 is the total surface area in acres of the 34 reservoirs at the maximum elevations of the detention pools. The figure 3,650 acre-feet for the Corps of Engineers' reservoir probably should be acres.

[4] Bottom lands (flood-plain area) permanently inundated. An additional 969 acres of bottom land would be inundated during floods. The total area of bottom land and upland inundated at spillway level would be 5,076 acres.

[5] The largest storm during the 20-year period used in the study was 8.37 inches which produced 3.7 inches of runoff. This flood inundated 10,513 acres of bottom land in the Little Washita River Basin. The proposed reservoirs will inundate 2,433 acres of bottom land which leaves a remainder of 8,080 acres that will be given protection by the reservoirs. With land treatment and reservoirs installed the area which would be inundated by this same storm is estimated to be 3,192 acres.

[6] Latest estimates of the installation cost of the entire tentative program is $4,552,877 of which $3,446,435 is the Federal cost. The total cost is made up of $1,973,307 for the floodwater-retarding structures and supporting minor works ($1,824,750 is the cost of the 34 structures alone) and $2,579,570 for the land-treatment program.

In considering the comparison, a question of hydrology is important. The 34 waterflow retarding structures proposed for this basin, because of the size and type of basin and the location of tributaries would afford partial flood protection to a large part of the Little Washita Valley; and would have their greatest effect upon the smaller floods. The degree of this protection, as compared with that furnished by the large dam, will depend upon the area, location, and size of the flood-producing storm. The large dam, located so that storage can be utilized to control runoff from a larger area, would be less affected by storm pattern or location, and would afford a large and more positive degree of flood control downstream from the dam site. As stated previously in reply to question 4, the two programs affect different parts of the flood problem.

It is possible that very large floods could be controlled by the Corps of Engineers' reservoir but not by the plan proposed by the Department of Agriculture. The system of retarding structures proposed by the USDA was designed for a runoff volume of 4 inches over the watershed. This is estimated to occur no more often than once in 25 years. With the program installed (land-treatment measures plus the structural measures), a flood of this magnitude, it is estimated, will inundate only 3,192 acres of the flood plain within the Little Washita watershed.

For floods only slightly larger than the design flood, the USDA program would reduce damages, but this effect would diminish as the floods increase in magnitude. The USDA plan is not designed to protect against the largest floods, but is considered justified by the protection it provides for the many lesser floods, particularly those from intense storms over small areas. The 34 dams would provide protection for tributary flood plains not protected by a single large structure downstream.

Since the two proposals are designed for different purposes, it is difficult to make direct comparisons. The USDA plan would provide better protection for the Little Washita River while the Corps of Engineers' plan would provide better protection for the main stream.

In view of the studies of effects of the programs which are now underway and are being coordinated under the Arkansas-White-Red survey procedure, and pending their application to the Little Washita Basin, it is considered that any brief comparison of plans for that basin is premature. Comparison as presented in the cited table is not a full and accurate comparison of the programs. It can serve only to mislead and confuse the reader.

This example illustrates the extent to which partisans for one type of program have misused or misinterpreted data. The widespread dissemination of the tabulation has been a disservice which cannot be readily corrected. This discussion may be of some help in clarification.

OTHER SUPPORTERS OF UPSTREAM WORKS

Mr. Peterson has never been publicly repudiated by the Department but he has been a great source of embarrassment to the Secretary's office which declares it does not follow his thesis that the Department of Agriculture's upstream works are a panacea for flood control. Other elements of the Department, however, have expressed the opinion that, while Mr. Peterson and his followers are perhaps overly zealous and inclined to overexaggeration, probably the upstream program would languish in the planning stage if the more rabid supporters of the watershed scheme did not arouse the farmers, the press, and Congress.

Other proponents of the watershed plan as substitute for downstream works have been less vehement than Mr. Peterson, but nevertheless quite insistent in the validity of their cause. The President of the Blue Valley Study Association in Kansas, Glenn R. Stockwell, agreed in his testimony to the subcommittee that the upstream projects, "will not control total floods." But he did adopt the qualified stand which is favored by many of the watershed planning advocates

that, "this program will make the control of the floods to the extent that it is probably feasible economically to do it." None of the witnesses who appeared before the subcommittee holding to this position could define the limits of economic justification and feasibility. It has not been made clear just where you should stop having any flood control, although one witness suggested that it might be wise to zone people out of areas downstream subject to flooding and protect industries which must remain by levees.

Much of the severe criticism of the main-stream developments comes from those whose lands are being flooded to make way for large reservoirs. For example, there has been a great deal of local controversy over the building by the Corps of Engineers of the Tuttle Creek Reservoir in Kansas, much of which is centered about the question of the uses to which the dam will be put. In testifying against this project, Mr. Stockwell noted that—

> The people of the Blue River have no moral obligation to provide flood protection to correct the mistakes of those who build in the flood plain. You cannot say we have to give up our land to protect somebody downstream.

Apparently it has not been made sufficiently clear in some parts of the Nation that floods cannot be stopped without holding back water and that no reservoir can be built without land under it.

The major point of disagreement concerning the effectiveness of the watershed projects in terms of total flood protection hinges on just how much water an upstream sponge can hold. There is obviously considerable difference between a 3-inch downpour and an 18-inch deluge, or between 3 inches of rainfall in a 24-hour period on dry soil and 3 inches in an hour on well-saturated soil. Once the saturation point of the retardation dams is reached upstream, the flood crest will start its destructive move down the river.

Conditions vary for each watershed, and the amount of flood prevention which can be obtained fluctuates. The SCS, however, carries on research to show the amount of discharge reduction which can be achieved by land treatment and structural measures for various types of floods. These floods are considered in terms of a 2-year, 5-year, etc., flood, a 5-year flood being the size of a flood generally occurring once every 5 years. The amount of percent reduction in peak discharge is greater for the larger, more infrequent floods because of a fixed outlet control, and in some instances SCS has estimated that it can achieve up to a 41-percent reduction on a 50-year flood, after which point the water goes over the spillways. Of course, not all retarding structures are built for 50-year floods, and many have an effect only on floods up to the 25-year frequency of expectation.

But, whatever the figures given by the SCS, there is always the crucial 25 or more percent of total annual flood damage which occurs downstream, below the upstream works. And it is this type of flood damage which in 1951 crippled metropolises like Kansas City, where it caused losses of nearly $1 billion.

The concept that upstream projects can bring about total flood control goes beyond anything that even the Department of Agriculture says is feasible or the Corps of Engineers says is feasible or the Department of the Interior and its engineers say is feasible.

Interagency Relationships

The debating societies which have sprung up in many of these basins seriously impede sound decisions of the Congress to take any major steps in the direction of flood control. The way is often too confused. In fact, the House Appropriations Committee this year proposed to appropriate no funds for flood control on the Kaw and Republican Rivers because there were conflicts in the area and that committee did not wish to proceed in the absence of a coordinated general plan for works. And it is hard to achieve any general plan when the local residents themselves, unwilling to accept advice of qualified professional experts, do not know what kind of flood protection they want.

Local disputes are perhaps inevitable, but the task of Congress in bringing about greater protection from floods becomes all the more difficult when Federal agencies themselves are in conflict. Officially there is no difference in the position of the Department of Agriculture and the Corps of Engineers as regards the upstream-downstream flood-control goals other than the Department's desire to accelerate its program. However, the subcommittee has not been able to understand why the people in the watersheds have continually supported the proposition that the Department can give them total flood control over the entire river if somewhere along the line the Department did not lend them some encouragement.

The Secretary, however, steadfastly denied any such encouragement in his testimony to the subcommittee. Mr. Brannan stated:

> I assure you that we have not in any wise encouraged any farmers to take the position which you described * * * a few minutes ago. We have not done it consciously, I assure you, and I am confident we have not done it unconsciously, because our statements have been consistent * * * over a long period of years. (Hearings, pt. 2, p. 210.)

When it was suggested to the Secretary that the executive agencies might make it more clear to the basin peoples that there is agreement on flood-control programs, Mr. Brannan replied that, even if this were done, those who advocated upstream works as a complete solution would still claim there was a conflict. The Secretary added:

> Conflict is the tool with which they got done what they wanted to do; namely, stopped the building of the reservoir. If that tool does not work, they will drop that one and use another one.

Another Department spokesman and a member of the Missouri Basin Interagency Committee, Gladwin Young, said that the upstream-downstream controversy was not one between the Department and the corps but one between the people of the Missouri Basin.

Mr. Young reiterated the Department's official position on the upstream-downstream controversy at the subcommittee hearings when asked to comment on the allegations that there had been a controversy over the relative importance of the upstream works as opposed to downstream projects at the MBIAC meeting at Topeka, Kans., on December 14, 1951. Mr. Young, who attended that meeting, told the subcommittee:

> I think we in the committee did not look upon that as a controversy in the discussions we had. It was the kind of discussion we carry out in the interagency committee. The statement that was made, to which I took exception, was that the program of soil conservation would have had no effect on the Kansas flood last

July [1951]. I took exception to that statement by stating that we had just presented to the interagency committee that day a statement that there would have been a material reduction in flood damage if the program proposed in the Missouri Basin agricultural program had been installed.

I think it was not in the nature of a controversy, Mr. Chairman.

There is, however, a controversy that is not one between the Department of Agriculture and the Corps of Engineers, but a controversy between the points of view of citizens within the State of Kansas, the State of Nebraska, and others in the lower part of the Missouri Basin. Some of those people take the point of view that, if watershed-management practices were installed, including soil-conservation practices and measures for small watercourses, if they were installed that is all that would be necessary. The Department of Agriculture has never taken that position and has definitely stated at every public meeting I know anything about that we do not support that point of view. Nevertheless, it prevails in a good many quarters. That is used by some people who are opposed to the larger dams as an argument against it.

Some of the testimony obtained from nondepartmental sources, however, comes to a different conclusion. The Honorable Albert M. Cole, Member of Congress from Kansas, who supports joint basin planning by both the Corps of Engineers and the Department of Agriculture, said that the agencies in the field had contributed to the misunderstanding in the basins and that the agencies had been very zealous in trying to get their programs in over the others.

More specific charges of interagency conflict came from Mr. Payton, president, Kansas Watersheds Association, who told the subcommittee:

> You have asked the question time and time again this morning as to whether the agencies have contributed to that [confusion over the effectiveness of the upstream works]. If I might give a rather blunt and brutal answer, I would say, definitely "Yes" on every point. I see no reason to be overly courteous or considerate. That is the case * * *.

The subcommittee had been led to believe from various sources, such as Mr. Peterson's magazine articles, that the watershed program is asserted to be more effective than even the SCS will admit, and questioned Mr. Payton on this matter. He replied:

> I would say from the local area side, which is the only place I can testify from with any authority, yes, they [the Department heads] were restrained [in their testimony before the committee], and I have had evidence after evidence of it.

Some of the evidence presented by Mr. Payton was his allegation that the SCS deliberately withheld the comparative table on the Washita used by Mr. Peterson.

Willard Breidenthal, chairman of the Flood Protection Planning Committee for Greater Kansas City, on the other hand, testified that he did not believe that the agencies had contributed to the misunderstanding in the Kansas area. He claimed that the "whole bone of contention is involved in the acquisition of the right-of-way that is necessary to build these structures." He blamed the delay on flood works on these landowners who feared loss of their land through inundation and who "have some community support from the adjacent towns under the threat of a boycott of their towns with their business."

Interagency Conflict

There is always a certain stimulus and glamour attached to a conflict, and in studying a problem there is a temptation to find a controversy, even where one may not in fact exist. It is also true, as the Secretary of Agriculture pointed out to the subcommittee, that many

pressure groups seeking to maintain the status quo deliberately will create an impression of controversy between Federal agencies and use this alleged misunderstanding as a means of resisting change. Some of the farmers whose lands would be flooded by main-stream reservoirs, for instance, would be happy to stir up an atmosphere of strife in hopes of delaying flood-control works, and much of the delay in appropriating funds for flood prevention may be attributed to just such an atmosphere.

With this propaganda element of conflict in mind, this subcommittee examined the sources of disagreement between the Corps of Engineers and the Department of Agriculture. The subcommittee did find controversy and misunderstanding to exist, but not in the arguments over the merits of upstream and downstream programs. A unity of purpose exists between the two agencies in this field, at least on the Washington level. Rather we found a basic conflict over the policies and procedures which should be followed to obtain integrated and coordinated planning of the watershed and main-stream works in a single basin by the two agencies.

VOLUNTARY JOINT PLANNING

Although the Department of Agriculture generally operates on its own, coordinating with the Corps of Engineers when it is so inclined, several formal pacts for mutual planning developments have been made. The most distinguishing and important aspect of these agreements lies in their voluntary nature.

The best known of these basin pacts is the Federal Interagency River Basin Committee, which was organized without legislative directive in the early 1940's as an interagency organization representing the corps, the Department, the Bureau of Reclamation, and the Federal Power Commission. The subcommittee's report on procedures discusses the committee more fully. In 1945 a Missouri Basin Interagency Committee was established as a subcommittee of the Federal body. In addition to the agencies whose representatives served on the parent body, the MBIAC included delegates from the governors of the Missouri Basin. The MBIAC's purpose is to advise, coordinate, and approve the work in the Missouri Valley, but its effectiveness on controversial issues is almost nil because of its voluntary character. Because the MBIAC was established by agreement, not by statute, it can take action only where there is unanimity. When any one party registers a veto, the question comes back to Washington where it becomes a matter to be acted on independently by the various agency chiefs.

The Department of Agriculture and the Corps of Engineers have also been participating in somewhat similar agreements in the Arkansas-Red-White Basin and the New England-New York region. The joint report on the Arkansas-Red-White Basin is due for completion in June 1954, but the subcommittee has learned that already cooperation has begun to break down in this area.

The problem of coordination between the Department of Agriculture and the Corps of Engineers did not become serious until the Department began its postwar acceleration of flood-control programs. At first there was no difficulty integrating projects of the two agencies because the Department was working in those watersheds where the

corps had either built the downstream works or had congressional authorization to build the specific structures. The Department deliberately fostered a policy of independent operations in these basins by taking the position that the corps' downstream structures would be built on the designated site regardless of the Department's views on the matter, and the Department simply took that into account and went ahead with its upstream work.

An example of this calculated policy of noncoordination may be found in the case of the Tuttle Creek Reservoir in the Blue River Valley of Kansas. The corps' Tuttle Creek project, authorized in 1938 and voted appropriations for construction in June 1952, has aroused a great deal of controversy in the Blue River Valley. It has been vigorously opposed by the people whose bottom land would be inundated by the reservoir. As the merit of this project was a live issue at the time of the subcommittee hearings, we tried to ascertain from the SCS, which is working upstream from the proposed dam, what its opinion was on the project and how its programs were being integrated with the Tuttle Creek Reservoir.

The testimony offered by J. C. Dykes, Deputy Chief of the SCS, revealed that the Department neither advocated nor opposed the specific major downstream project on a river being developed upstream by the SCS.

The reason given by Mr. Dykes for this officially neutral position on the reservoir was that there had been no joint study of the area undertaken by the two agencies. Mr. Dykes told the subcommittee:

> It is simply attending to our business and letting the corps attend to theirs. * * * We recognize that you have to have a downstream structure, but whether it ought to be at that location or at that site which the corps proposed, we do not know.

In explaining the Department's position further, Mr. Dykes noted that when the Tuttle Creek Reservoir was authorized in 1938 the Department's watershed program was only 2 years old, and not until this past year or so did the Department have any information regarding the Blue Valley and what effect various proposed structures would have on flood conditions. The SCS deputy chief expressed concern over the corps' apparent failure to give consideration to what effects the Department's Blue Valley watershed program would have on the design of the Tuttle Creek Dam.

The Department, however, on its end decided to consider Tuttle Creek as built and "claim no benefits in the reservoir area." Another representative of the SCS, Carl Brown, elaborated as follows:

> Where the Corps of Engineers and the Soil Conservation Service and the Department of Agriculture are carrying out joint studies as in the Washita, then these programs can be coordinated. But, if the Corps of Engineers already has an authorized project, then the only thing the Department of Agriculture can do is to take that authorization into account and build its program for the additional protection that can be afforded above that project.
>
> So the consequence is we have made no studies of what kind of benefits might accrue, if any, in the Tuttle Creek Reservoir area or below Tuttle Creek. If the Tuttle Creek were not authorized, we might have made studies of what our program would have done farther downstream, but in view of that authorization we have made no such studies and we find that our program is fully justified on the basis of the benefits above the reservoir in the tributary valleys.

The seriousness of this lack of coordination in the Blue River Basin is not clear, but an examination of the furor raised by the corps

over several of the survey reports now pending before the full committee points up the conflict between the two agencies which are supposedly acting in such a complementary fashion. These survey reports are made in basins where neither the corps nor the Department was entrenched before the arrival of the other, and it was not left open as in the case of Tuttle Creek for one agency to say that as long as the other group's works were being built it would just go ahead independently with its own plans.

We earlier noted some of the criticism directed to the Department's use of the sampling method in its surveys. It is further apparent from analyzing some of the reviews of the Department surveys by the corps that the two agencies have come to substantial disagreement on engineering matters.

For instance, in the Brazos River survey the Department calls for construction of some 555 floodwater-retarding structures, with no data being given as to the location or engineering of these structures. Discussing the effect of the Department's plan on the corps, the Chief of Engineers, United States Army, stated in his covering review letter:

> A system of this kind would have serious impact on downstream flood problems and on the effectiveness and security of downstream works for flood control and water conservation. Careful flood studies and flood routings would be necessary to establish the cumulative effect of these retarding reservoirs on floods on the main river valleys * * *. Our studies indicate that they will not protect mainstream valleys from large floods and may result in aggravated flood situations in downstream areas. (H. Doc. 396, 82d Cong., 2d sess., p. 5.)

In the light of consequences the upstream works were estimated to have downstream, the Chief of Engineers flatly refused to concur in the structural aspects of the Brazos report pending further development of the Department's plans and coordination with the corps. He rejected the Department's proposals as follows:

> I appreciate that it is the intention of your Department to investigate these matters and prepare the necessary detailed plans for these reservoirs and channel improvement after authorization. I feel, however, that this phase of your program for the Brazos Basin is of major importance; that serious questions of engineering adequacy, effect, and economics have not been answered; and that the correlation of this part of your program with other plans for flood control and water conservation in the basin is so necessary that this should be accomplished prior to authorization by Congress. I am, therefore, unable to concur with a recommendation for authorization of this part of your program on the basis of existing studies and consider that, with respect to the reservoirs and channel improvements, your report should recommend that they be made the basis of a further joint investigation by the Corps of Engineers and the Department of Agriculture.
>
> It does not appear to me that there would be any material loss of time or effort in the further joint study I propose for the second class of work set forth in your program. Provision of the watershed improvement phase of your program seems to be the obvious first step, and as this by itself is a program of considerable magnitude, it is probable that further studies for correlation of the second class of projects, dams, and channel improvements, could be accomplished without delaying the logical development of your program as a whole (H. Doc. 396, 82d Cong., 2d sess., p. 51).

On the Pecos River, N. Mex. and Tex. (H. Doc. 475, 82d Cong., 2d Sess.), the Corps of Engineers claimed that there was not sufficient data presented on the main retarding structure to determine its structural adequacy or its effect on the corps' downstream works. The Chief of Engineers also commented on the channel rectification recommendations as having "significant effect on the downstream flood discharges and problems." The strongest objection was made

with regard to the 45.5 miles of bank protection works estimated to cost $1,107,000. The Army engineers' comment bluntly stated, "your recommended bank protection lacks economic justification by a wide margin."

The Grand River report (H. Doc. 388, 82d Cong., 2d sess.) came under attack in the corps' review on the grounds that if "a reasonable degree of safety and utility" was to be provided the cost estimate of the structures would be considerably higher than that set forth by the Department. The Chief of Engineers called for more detailed engineering studies. He commented:

> These engineering studies would, of course, be necessary before construction is undertaken and the necessity for such studies and their possible effects upon the economics of the plan, and for careful coordination of flood-control plans, as well as the watershed management phase of the program, should be recognized.

The Chief of Engineers charged in the corps' review of the Delaware River report (H. Doc. 405, 82d Cong., 2d sess.) that the Department of Agriculture was making invalid claims for the amount of protection the proposed structures would provide against major floods. He further reminded the Department that—

> The retarding structures, particularly when located above urban areas, should be constructed so as to provide a reasonable degree of dependability and safety, and their limitations should be made plain so as to avoid giving a false sense of security and increasing local hazards to life and property.

The letter further suggested the need for coordinated planning before construction and advised the Department that a joint study and "a further recommendation to Congress" would be necessary if the Department decided to increase the size of its structures.

The Queen Creek (Ariz.) report (H. Doc. 397, 82d Cong., 2d sess.) was criticized by the corps because inadequate information as to design or cost was given on the major dam, a 2-mile-long earth dike. The Chief of Engineers, however, noted that the Department of Agriculture planned to make a detailed reinvestigation of the project if the watershed program was authorized.

While the technical criticisms made by the Corps of Engineers of the proposals of the Department of Agriculture appear in the print in the pertinent public documents, technical criticisms by the Department of Agriculture of the Corps of Engineers' criteria are not so easy to document. One particular criticism of design criteria repeatedly has come forward in discussions with the administrative personnel concerned with the programs.

The Corps of Engineers is responsible for the construction of many large dams, the failure of any one of which could be catastrophic. The loss of property and life that might result from the failure of a flood-control structure immediately above a center of population would tend to justify measures taken in the interests of safety which might otherwise be considered economically wasteful. For example, flood-storage capacity of Corps of Engineers' reservoirs frequently contemplates the runoff under adverse flood conditions from a storm greater in volume and more adverse in location than any which has actually occurred. Then the dam and spillway are designed to withstand maximum wave conditions after the filling of the reservoir from such a storm and further to safely experience a second excessively large storm. In some instances this would mean that a structure would not

fail from overtopping under the worse conditions considered even vaguely remotely possible and not at all likely to occur.

Engineers of the Department of the Army have been inclined to apply these same criteria to the small gully plug-type structures proposed by the Department of Agriculture. The failure of any one of these small SCS structures would, of course, cause undesirable loss. However, the loss would usually be limited to damage to the structure and to farm land immediately downstream. On the average, the volume of water involved and the location of the structure would both be such as to have little damaging effect upon centers of population located downstream. Further, the structures proposed by the Department of Agriculture are intended to protect only against the most frequent floods.

Accordingly, the design criteria developed anticipate only that the structures will be reasonably safe against occasional overtopping. This is a considerably different situation from that anticipated under the Corps of Engineers' design criteria. It results in a considerably less expensive structure. The Department of Agriculture argues that such criteria are adequae for its purpose. The Corps of Engineers argues that structures built in accordance with such criteria will not stand up under conditions their works are planned to withstand. The Corps of Engineers charges that the Department of Agriculture works are underdesigned. The Department of Agriculture counters with a charge that the Corps of Engineers overdesigns its works and wants to carry that uneconomic practice down to the small upstream structures.

Joint studies initiated late in the summer of 1952 indicate that the Corps of Engineers is coming to recognize that design criteria for the small upstream structures should not be the same as the design criteria for the large flood-control dams above major centers of population. However, how soon an adequate compromise may be reached is questionable. In the meantime the difference in the two approaches to design tends to keep the two agencies out of harmony.

Even making allowance for allegations that the corps tends to overdesign its projects and the claim that many of the Department's watershed works have no effect on the main stream and hence are not the corps' concern, it is clear that much of the criticism of the Corps of Engineers is justified. The Committee on Public Works is confronted with these basic engineering controversies in most of the Department's surveys now being offered for authorization. Thus, a congressional committee whose members are not civil engineers by profession are placed in the role of arbitrating technical disputes between Federal engineers.

Perhaps recognizing the difficult position that Congress is placed in on this matter, the corps suggests in its Agriculture survey reviews, as it did on the case of the Pecos River that the disputed structural parts of the Department's programs "be made the subject of a further joint study by our two agencies prior to recommendation to Congress for authorization."

The Department of Agriculture, which has no apparent desire to develop a watershed in conflict with a corps' program, concurred in the corps' recommendation for joint studies. In answer to the particular objections of the corps in the Pecos River report, the Assistant

Secretary, K. T. Hutchinson, wrote in his letter of transmittal to Congress:

> The program of this Department will be correlated to the fullest extent possible with the program of the Department of the Army prior to the initiation of construction of the structures or improvements involved.

The difference between these two agreements for coordination narrows down to a crucial question of timing—whether the joint studies should be undertaken before authorization or after. According to representatives of the Department and of the corps, there have been no other basic disputes uncovered in the matters of the responsibilities of the two agencies, the types of measures to be followed in flood control, or the procedures to be pursued under the Federal Interagency River Basin Committee.

The moves which led to the settling of most of the interagency difficulties were initiated in August 1950, by the Department of Agriculture and the Corps of Engineers when the two agencies agreed to have representatives meet jointly to iron out problems arising in the survey report procedure, and clarify the relationship of the two bodies in flood control. In early 1951 each agency appointed two negotiators to develop a memorandum of understanding which, it was hoped, would eventually lead to a formal working agreement.

In negotiating this memorandum of understanding, the survey reports came under discussion and the Department of Agriculture representatives expressed a desire to complete these reports as quickly as possible and to forward them to Congress. The Department took the position that in works in the zones of mutual interest it would undertake joint studies with the corps after the authorization of the watershed program but before any actual construction was begun. The corps' negotiators, on the other hand, assumed the stand that any correlation should be undertaken before authorization. The last draft of the Department was submitted to the corps on January 15, 1952, and has been in the hands of the corps' negotiators since that date.

The Department's objection appears to stem from (1) a desire to expedite its surveys because it has been criticized in many quarters for delay; and (2) a lack of survey funds to undertake extensive joint studies on projects which may never be authorized.

A third objection, which has never been officially expressed by the Department, is that some officials of the Department believe that if coordination were required before authorization the Department would become subservient to the corps. The sentiment in some quarters is that in order to end a conflict with the corps in a basin and get the survey before Congress for authorization the Department would be obliged to surrender to corps' proposals and criteria on engineering and economic aspects of the watershed program. On the other hand, there is the feeling that if coordination is not required until after authorization the Department will be free, as it is now, to call off coordination whenever it interferes with the Department's schemes and to proceed independently with its authorized watershed plan under its "mandate" from Congress.

Although this before-and-after problem continues to impede the progress toward a Department-corps memorandum of understanding, it should be noted that during the negotiations the Department has not expressed any desire to become a big dam construction agency

and has stated that it is not so much concerned with who builds a particular structure but that it be built. At the same time, the corps has not sought to take over the construction of the small retarding dams which are provided for in the Department's improvement programs.

Cooperation to Controversy: A Case Study

There is little question about the apparent desire of the Department of Agriculture and the Corps of Engineers to correlate their flood-control activities, but top-level policy often becomes diluted in practice. A case study in point is the Salt-Wahoo watershed in Nebraska which at one time was offered as a perfect example of completely coordinated planning. Today, the Department of Agriculture has one survey before Congress as part of the Missouri River Basin Agricultural Program, Supplemental Report (H. Doc. 530, 82d Cong.) and the Corps of Engineers is preparing an independent study.

Federal flood-control activity in the Salt-Wahoo area can be considered to have officially commenced on November 8, 1945, when the Corps of Engineers received an authorization to survey the basin. The corps was unable to recommend a program for the protection of the upper watershed above Lincoln, and the citizens of the valley turned their attention to the Soil Conservation Service on-the-soil program. The movement to obtain flood control up and down the basin was accelerated after the May 1950 floods which caused $53,000,000 damages in southeast Nebraska. Following the floods, the people of the 1,655-square-mile watershed drained by the Salt and Wahoo Creeks organized themselves into the Salt-Wahoo Watershed Association. This association dedicated itself to the principles of on-the-land water conservation and erosion control; integration of upstream retention works and land-treatment measures with downstream control works; and the coordination of Federal, State, and local agencies. The corps meanwhile agreed to make further investigation of the watershed to determine whether a plan could be worked out that would be economically justifiable.

On July 20, 1950, the Soil Conservation Service was authorized and directed by resolution of the Committee on Public Works to make a flood- and erosion-control survey of the Salt-Wahoo watershed which, at the request of the Committee on Public Works, was to be submitted simultaneously with the corps' report to Congress. On October 20, 1950, the corps made public its tentative recommendation for the Salt-Wahoo, calling for a $14,000,000 project which included four reservoirs and channel enlargements, straightening, and extensive levees downstream from the cities of Lincoln and Wahoo. The Salt-Wahoo Association denounced this program the day it was announced as "piecemeal and extravagant" and refused to consider the corps' plan until Agriculture's survey for the upper tributaries was completed.

Pressure exerted by the association resulted in a voluntary agreement by the Department of Agriculture and the Corps of Engineers that they would conduct the watershed investigations over again from the beginning as a joint study.

On June 11, 1951, the two agencies presented a joint progress report to the Nebraska coordinating committee of the Missouri River

Basin development. This report in the words of the Corps of Engineers and the Soil Conservation Service themselves tells the story of the importance this joint study held for the future of integrated basin development.

The objective of this study as stated in the report was—

> To prepare an over-all comprehensive plan for the entire Salt Creek Basin which will represent from the standpoint of both agencies the best plan for the basin as a whole which is practicable within the limits of economic feasibility, and one which both agencies can recommend and support without reservation. Both agencies feel that this objective can best be realized by a joint study which will produce a single plan mutually developed by both agencies rather than a compromise between two individual plans developed by the two agencies acting independently.

The report noted that cooperative studies had been made before, but only in areas where there was a division of primary interest and where data was shared, but the studies themselves were essentially independent. In the Salt Creek, however, there was no division of the basin into areas of primary interest, and "results were to represent the joint effort of both agencies toward the solution of the same problems."

The two agencies recognized the pioneering nature of this joint study in the Salt-Wahoo, and pointed out that—

> because these joint studies may serve as the pattern for future similar studies in other basins, both agencies are making every effort to insure their successful conclusion.

At the time this report was made, the progress largely had been of a data-collecting nature. The hydrological studies were well advanced and the hydraulic and flood-damage studies were completed which showed the flood stages and damages for all parts of the river. The two agencies were engaged in preliminary design studies for individual structures and had formulated tentative plans for the land treatment and supplemental upstream structures.

The joint survey was scheduled for completion and submission to Congress on January 2, 1952, and as of the time of the joint progress report in June 1951, harmony appeared to reign. But the inter-agency honeymoon ended sometime during the summer and fall of 1951—no one seems certain just when. The official obituary to this "pioneering" venture was written on January 22, 1952, when Col. Henry J. Hoeffer, district engineer of the Corps of Engineers of the Omaha district, wrote to Arthur E. McClymonds, Soil Conservation Service regional conservator at Lincoln, that as of this date the corps considered joint planning broken off. Mutual regrets were offered by both sides over the separation, but the SCS did not take any major steps to effect a reconciliation.

The train of events between June 11, 1951, and January 2, 1952, is somewhat obscure, but the subcommittee endeavored to ascertain the causes which led to the breach.

The association's version of the break in agency relations is found in the testimony of Otto M. Liebers, cochairman of the association, to the subcommittee, as follows:

> Cooperation of the two agencies in the Salt-Wahoo investigation continued until the final stages of the program to be recommended. At this point disagreement at the top level of the two agencies caused delay in completion of the report. Seeing that the delay would forbid presentation of the joint report to this session of the Congress, the Salt-Wahoo Association requested the Department of Agri-

culture to complete its recommendations for the watershed to be presented to Congress with the supplemental report to House Document 373, the agricultural development plan for the Missouri River Basin.

Thus, the association denied any connection in the delay and simply adopted the attitude that it wanted action and could not wait for the two agencies to settle their differences. This willingness to abandon joint planning came as somewhat of a surprise to the subcommittee which also heard testimony from the association's other cochairman, Raymond A. McConnell. He testified:

> Planning for our watershed as a whole, coordinated between planning agencies must begin at the beginning. It is not enough, for example, to draw up two or more separate and unrelated plans, compiled on the basis of conflicting or of possibly contradictory basic assumption, and then coordinate them by sticking a hyphen between them. That is what we were trying to avoid in this area.

Turning to the correspondence between Colonel Hoeffer of the Corps of Engineers and Mr. McClymonds of the Soil Conservation Service concerning the abandonment of the joint study, we found that one of the major reasons given by the corps for the break was the insistence of the association that the SCS proceed independently with its study.

In his letter of January 22, 1952, to Mr. McClymonds, Colonel Hoeffer wrote:

> As of the joint progress report of June 11, 1951, the corps felt that the joint progress was going smoothly. Then the SCS proceeded with its independent study and mutual planning was no longer possible.

Mr. McClymonds responded to this letter on February 6 by stating that the association through Congress had urged both the corps and Department to complete their surveys in time for authorization by the Eighty-second Congress, second session, and that General Pick said that the corps could not complete its surveys until May 15, which was too late, so the SCS went forward with its own program.

Colonel Hoeffer offered a subsidiary reason for the breakdown in the joint study that the corps' plans were upset when the SCS shifted its program from 72 to 165 reservoirs. There has also been unofficial objection to the Department referring the 72-reservoir plan to the corps for study at the same time that the Department, unknown to the corps, had already abandoned this plan and was developing the 165-reservoir program. The SCS replied (letter of February 6) that its program did "not differ substantially from the program of November 29, 1951." Mr. McClymonds further denied that as a result of this change any overlapping existed and stated his reasons for the shift. He wrote that the change from 72 to 165 structures was in order to (1) give greater protection to the watershed by locating dams on as many upstream headwaters as possible; (2) minimize utilization of valuable land at any individual water site; and (3) avoid sites where relocation or abandonment of farmsteads would be necessary.

The corps, through Colonel Hoeffer, replied on February 27 that it regretted the abandonment of cooperation and still sought as much coordination as possible. In line with this, the corps would proceed with its own plan, keeping in mind the SCS program and would refer its plan to the SCS for review upon completion. In this letter, Colonel Hoeffer also charged that overlapping did exist under the 165 reservoir plan; that the cost estimates and benefit estimates followed

different standards than those set by the corps; and that some question existed as to the economic justification of the SCS projects.

In March and April, the Department's studies on the Salt-Wahoo were sent to the Secretary's office for approval, but at no time until late in May was the corps given any data on the Department's study to analyze and perhaps tie-in with the corps' report.

On May 15, Mr. McClymonds replied that the survey was on its way through the Secretary's office to the Congress in the Missouri Basin supplemental report, but that the SCS would be glad to cooperate on the staff level and would agree to a meeting of the SCS-corps technicians on May 19.

Colonel Hoeffer on May 27 wrote to Mr. McClymonds his interpretation of the SCS problem in terms of the over-all thesis of the Department that it cannot coordinate until after it receives authorization. Colonel Hoeffer noted that the Department probably wished to avoid recall of the survey at this late date and would wait until the work-plan stage to begin the joint studies again. Colonel Hoeffer also expressed sympathy with the inability of the Department to obtain necessary survey funds which might permit coordinated detailed planning before authorization.

The discussion closed, for the time at least, on May 29 when Mr. McClymonds wrote to Colonel Hoeffer that after authorization there would be funds for greater study and that coordinated planning could be resumed during the work-plan phase.

On July 3, 1952, the Department submitted the Salt-Wahoo plan to the Committee on Agriculture as part of the supplemental report—Missouri River Basin agricultural program (H. Doc. 530, 82d Cong.). This survey clearly states flood control as one of its major objectives and calls for 165 retarding structures, 142 miles of channel improvements, 2,376 stabilizing and sediment-control structures, and approximately 968 miles of subwatershed waterway improvements.

Throughout this tale of a breakdown in joint study negotiations lay the repeated, and apparently compelling, pleas of the SCS and the Salt-Wahoo Association that the SCS must go ahead with its own plan in order to submit at least some sort of flood-control program to the second session of the Eighty-second Congress. The corps was reprimanded and disqualified for lateness.

It has been gossiped that the Corps of Engineers deliberately interrupted its survey work in order to break down the joint approach. The 1952 appropriation bill containing funds for the Corps of Engineers flood control, as reported to the House on June 8, 1951, contained no funds for surveys. Although the Senate restored funds for this purpose, the bill as finally enacted on October 24, 1951, contained no funds for use on the Salt-Wahoo flood-control survey. On July 1 the Corps of Engineers halted its entire survey program in order to reappraise the allotment of available funds in the face of the House action. This action suspended field work in the Salt-Wahoo study from July 1 to early September, approximately 2 months. At the latter time funds in the amount requested by the district engineer were made available to him and work was resumed. The Corps of Engineers reports no other interruption to its work. It is to be noted that Colonel Hoeffer's letter recognizing the breakdown of the joint effort was written over 4 months later. The gossip appears to be without substantial foundation.

The correspondence between January 22 and May 29, 1952, seems to indicate that the responsibility for the breakdown rested with the Department of Agriculture's consideration of urgency as paramount.

The SCS report did not go before Congress until July 3, 1952, 3 days before adjournment. And when the Congress adjourned on July 6 no action whatsoever had been taken on the "very urgent" Salt-Wahoo report. The report as printed in House Document 530, Eighty-second Congress, includes two letters added subsequent to the submission of the report to Congress which bring the story of the cooperation—or controversy—up to date.

Under date of July 31 the Chief of Engineers in a letter to the Secretary of Agriculture stated as follows:

> The second class of improvements in your recommended program for Salt-Wahoo Creeks, Blue River, upper South Platte River, and Osage River involve stabilizing measures for small watercourses, including floodwater retarding dams, sediment-control structures, diversion dikes, floodways, and channel improvements; approval of which is recommended under the flood-control acts. I am particularly concerned with this phase of the program because it is closely interrelated with flood-control works and problems which are the responsibility of the Corps of Engineers.
>
> I feel that more data are needed before detailed comments can be made on the second class of improvements recommended in your report, and certainly before you seek authorization for their construction. As you know, joint studies, with a view to developing a coordinated plan for the Salt-Wahoo Basin, have been carried on for some months by the field offices of our two agencies. *On the basis of these joint studies to date, we do not feel that the program you propose for this basin provides a degree of flood protection that is adequate and sound from engineering and economic standpoints.* Apparently the desire of your Department to submit this separate report has temporarily deferred completion of the joint studies which we consider necessary and desire to continue. My further comments on the part of your program intimately related to flood-control operations under the jurisdiction of the Corps of Engineers are reserved, therefore, until completion of the coordinated study. [Italics supplied.]

In reply to this comment, the Acting Secretary of Agriculture stated on September 18, 1952:

> In developing our proposed program for the Salt-Wahoo Creeks watershed we anticipated that the Corps of Engineers would also develop a plan of flood control so that the combined plans would provide adequate flood protection for the basin. Consequently we did not attempt to prepare a plan for complete flood protection. We believe that our recommended program is sound for the purpose intended from an engineering and economic viewpoint. This is based on the costs and the benefits claimed, but the justification for the program is contained in appendix and file material not presented in the report. The same comment applies to the programs recommended for the other watersheds covered in the report.
>
> The Department of Agriculture shares your desire to continue joint studies with a view to developing a coordinated plan in the best interests of the people of the Salt-Wahoo basin. *We feel, however, that such studies can be accomplished most successfully during the work-planning stage of program development.* At this stage, prior to beginning construction of any of the improvements or structures involved, the program of this Department will be coordinated to the fullest extent practicable with the plan under development by the Corps of Engineers.
>
> We hope that this explanation and the further offer of cooperation will provide a basis for your more complete endorsement of our proposed program. [Italics supplied.]

And there we stand. Congress is invited to act on a program wherein the executive branch agencies are in dispute as to engineering and economic questions.

The confusion is confounded when it is noted that the report on the Salt Creek-Wahoo Basin included by the Department of Agriculture in its Supplemental Report, Missouri River Basin agricultural

program, referred to the Committee on Agriculture was specifically authorized by a resolution reading:

Resolved by the Committee on Public Works of the House of Representatives, United States, That the Department of Agriculture be, and is hereby, requested to review the reports on the Missouri River Basin, submitted in House Document Numbered 373, Eighty-first Congress, first session, with a view to determining whether any modifications in the recommendations contained therein with respect to the Salt Creek-Wahoo Basin, Nebraska, should be made at this time. Adopted, July 19, 1950.

Authorization Overlaps

The Salt-Wahoo project has gained much of its notoriety as being an illustration of coordination gone sour, but there is also another perhaps equally significant aspect of this watershed plan deserving of study—the problem of authorization overlaps.

The Department of Agriculture frequently has reminded Members of Congress and the executive agencies that every one of the watershed projects being planned by Agriculture can be legally conducted either under flood-control legislation as a public works measure or under soil conservation legislation as a purely agriculture measure. Flood control is an assigned function of the Committee on Public Works whereas agriculture generally and soil conservation are assigned functions of the Committee on Agriculture. At first glance this dual congressional channel for authorization of the same project may appear to be a procedural matter of concern only to parliamentarians. It is not. The existence of this possibility enables the Department of Agriculture to work with two congressional committees on the same kind of program and further seems to enable the Department to partake only of such coordination with the Corps of Engineers as it, not Congress, deems necessary and wise.

In early 1944, when the Bureau of the Budget was considering the Corps of Engineers' report for flood control on the Missouri River Basin, it questioned the Department of Agriculture on the part that agency should be expected to play in the comprehensive development of the land and water resources of the Missouri River Basin. Apparently that inquiry played some part in stimulating the more comprehensive approach the Department of Agriculture took in considering its responsibilities in the area. In September 1949, it submitted a report to Congress which it entitled in the first paragraph of the Secretary's letter Missouri River Basin Agricultural Program. As would be logical on the basis of the title, the report was referred to the committees on agriculture. However, in that report we find cited as authority at least seven acts of Congress authorizing the Department of Agriculture to undertake surveys, investigations, and research. It is to be noted, however, that only one of these authorizations (that under the Flood Control Act of June 22, 1936, as amended and supplemented) required the Department of Agriculture to make a report to Congress. While the others authorized surveys and planning, none specifically directed that a report be submitted. It is interesting to note that nowhere in his letter to the Speaker did the Secretary of Agriculture point out that this report is the one required to be submitted in response to flood-control law, yet it is obvious from discussions with officials of the Department of Agriculture that this report is intended to be the one called for by the law as a report on flood control.

Subsequently, under authority of law, the Committee on Public Works authorized and directed the Department of Agriculture to make three review reports of certain specific watersheds generally included within the whole Missouri River Basin. Again the Department of Agriculture chose not to be simple and clear and rather than report directly in response to the review resolutions, it prepared a supplement to its Missouri River agricultural program and cited the specific directives of the Committee on Public Works not as its authority but rather only as among its authorities. Certainly, a report of the Department of Agriculture on an agricultural program would appear to be most properly referred to the Committee on Agriculture. However, when any committee of Congress specifically calls on any of the executive departments for a report, it is entitled to have such a report submitted with a sufficiently clear letter of transmittal that it will unquestionably be referred to the committee concerned. It follows that the report should be concerned with the questions raised by the committees seeking the report. The recent reports of the Department of Agriculture have not been exclusively or primarily concerned with the specific purposes for which they are directed.

Again, the Salt-Wahoo project illustrates the problems raised by two-committee jurisdiction over flood-control activities. The Salt-Wahoo report is now before the House Committee on Agriculture and that committee is requested by Agriculture to authorize the construction of 165 retarding structures—structures which the Army district engineer claims may result in overlapping and may not even be economically justifiable. Meanwhile, the corps plans to present its report to the Committee on Public Works, some of which is probably going to conflict with the upstream program of Agriculture. Thus, there will be two independent committees viewing the same problems from separate corners. Congress, of course, has the pious assurance from both the corps and Agriculture that there will be coordination during the work-plan stage—after authorization. It is comforting to know that the corps and Agriculture hope to reach an agreement on this and other programs before any concrete is poured or earth is moved, but it does seem unusual that Congress should be obligated to speculate as to the degree of coordination which will ultimately be achieved. The agreement to coordinate in the future is 100 percent voluntary and Congress is expected to place blind faith in this cooperative venture.

The background to this problem began in 1916 when a Committee on Flood Control was created in the House of Representatives. In January 1947, under a rule established as a part of the Legislative Reorganization Act of 1946, there was created a Committee on Public Works of the House of Representatives. Among the functions assigned this committee were those of the Flood Control Committee which was abolished at that time. It was the Flood Control Committee which sponsored the legislation authorizing the Department of Agriculture's present so-called flood-control program.

The Department of Agriculture, however, has very broad authority to carry out programs almost identical to those authorized by the flood-control acts under the conservation and use programs authorized by the Soil Conservation and Domestic Allotment Act approved February 29, 1936, the soil conservation services program of assistance to districts and other cooperators authorized by the act of April 27,

1935, and State and private forestry cooperation pursuant to the act of August 25, 1950, and other acts.

An example of the broad authority of the Department of Agriculture under these acts is found in the act of April 27, 1935, which provides that the Soil Conservation Service is authorized—

> to provide for the protection of land resources against soil erosion and for other purposes—

and which declares it to be the policy of Congress—

> to provide permanently for the control and prevention of soil erosion and thereby to preserve natural resources, *control* floods, prevent impairment of reservoirs and maintain the navigability of rivers and harbors, protect public health, public lands, * * *

Another example is the authority contained in the Department of Agriculture Appropriation Act, 1952, for—

> making conservation surveys and plans and establishing measures to conserve soil and water (*including farm irrigation and land drainage and such special measures as may be necessary to prevent floods and the siltation of reservoirs*). * * *

The Committee on Agriculture has jurisdiction over measures authorized under soil conservation legislation and with flood control as one of the subsidiary objectives of this legislation there is considerable leeway resting with the Secretary in interpreting the primary purpose of a project. The Secretary informed the subcommittee that—

> the flood-control program is distinguished from the other programs (authorized by other acts) of the Department in that it has as a specific purpose the reduction of floodwater and sediment damages.

It has never been fully determined by the subcommittee as to just how "specific" flood control has to be as a "purpose" before the project is to be considered within the jurisdiction of the Committee on Public Works.

Under the authority of the Flood Control Act of June 22, 1936, as amended and supplemented, the Secretary of Agriculture has been submitting reports to Congress from time to time. Eleven, recommending works of improvement, were submitted during the Seventy-seventh and Seventy-eighth Congresses. These stated clearly in the letter of transmittals that they had been prepared and were being submitted in accordance with the provisions of flood-control legislation. They were all referred to the Committee on Flood Control.

In October 1949, the report, already referred to, entitled "Missouri River Basin Agricultural Program" was submitted by the Secretary of Agriculture and referred to the Committee on Agriculture (H. Doc. 373, 81st Cong.). The Secretary's letter of transmittal did not specify the authority under which the report had been prepared. However, the lead paragraph in the basic report of the Department cited as authority the Soil Conservation and Domestic Allotment Act approved February 29, 1936, title 3 of the Bankhead-Jones Act of July 22, 1937, and the Flood Control Act of June 22, 1936, as amended and supplemented. The report stated that additional authority for program planning was contained in four other laws approved in 1862, 1935, and 1936. The report on the Missouri River Basin, while concerned largely with agricultural problems, was also concerned with flood control and intended to be the Department's report on the flood control. While several acts of law could be pointed to for authority,

there appears to have been only one specific directive calling for a report, the Flood Control Act of 1936, as amended and supplemented.

In October 1951 a report on the Green River watershed, Kentucky and Tennessee, was submitted (on the last day of the congressional session) as, according to the letter of transmittal of the Secretary of Agriculture, authorized and directed by the Flood Control Act of August 28, 1937. This report was referred to the Committee on Public Works (H. Doc. 261, 82d Cong.), although the survey appears to call for essentially an agricultural program. For example, recommended objectives include perennial vegetation, pasture development, wildlife area development, adequate fire control, forest planting, land acquisition, and educational assistance.

In the spring of 1952 the Department completed nine additional reports and submitted them to Congress. These reports cite as exclusive authority the flood-control acts which had authorized and directed that the surveys be made. All nine of them were referred to the Committee on Public Works.

On July 3, 1952, the Secretary of Agriculture transmitted the first supplemental report to the Missouri River Basin agriculture program to the Congress. The new report was referred to the Committee on Agriculture of the House and ordered to be printed as House Document 530.

The report recommends that the Secretary be authorized to carry out certain programs for the watersheds of the Salt-Wahoo Creek, Nebr.; Blue River, Nebr. and Kans.; upper South Platte River, Colo.; Osage River, Mo. and Kans.; and Five Mile Creek, Wyo. The estimated Federal cost is in excess of $246,000,000, and that to local interests in excess of $133,000,000.

The authorities cited in the report include both flood-control and soil-conservation legislation. In addition, it cites three specific resolutions of the Committee on Public Works. These three resolutions specifically requested (*a*) a review of recommendations on the Salt Creek-Wahoo Basin (adopted July 19, 1950); (*b*) of the Big Blue River watershed, Nebraska (adopted June 26, 1951); and (*c*) of the Kansas, the Osage, the Blackwater, the Platte, and the Chariton River Basins (adopted March 5, 1952).

The Secretary's letter of transmittal states:

> The enclosed report sets forth a broad program designed to abate flood and sediment damages, conserve and improve the soil for sustained productive use, protect and enhance the forest resource, provide for more efficient land use through irrigation and drainage, protect the water resource, and in other ways, including investigations, research, and surveys, to contribute to the full and efficient development, utilization, and conservation of specific watershed areas within the Missouri River Basin.

There is nothing to indicate that the Department wishes to avoid ambiguity in its submission.

This report includes recommendations for what the Department terms stabilizing small watercourses. These measures include upstream floodwater-retarding dams, sediment-control structures, and channel improvement. These measures account for $87,904,400 of the $249,775,150 estimated Federal costs for the recommended accelerated program, and for $112,180,500 of the $386,693,240 total estimated costs.

Apparently as an outgrowth of criticisms by the Public Works Committee of the form and content of the current type of report, elements of the Department of Agriculture have determined that their proposals have greater chance of success if handled by the Committee on Agriculture. The statement has been made that the Department of Agriculture considers the Committee on Agriculture more receptive to the programs and so anticipate that appropriations will be more readily forthcoming. This argument appears to have little validity in the light of the absence of any Agriculture surveys between 1944 and October 20, 1951, and the fact that neither committee is an appropriations committee.

It would appear that the Department of Agriculture's action was actually based on its anticipation that the Committee on Public Works would be inclined to consider only public-works features and would not be willing to load down flood-control legislation with authorizations that were not strictly relevant to responsibilities of the committee. This anticipation is reasonably sound since the committee has objected to this attempt to force it either to take no jurisdiction over a program at all or be obliged to pass on agricultural measures as well as flood-control works. The Department's position thus seems to have been to try to obtain authorization for acceleration of its going programs of soil conservation under the guise of flood control or, failing this, simply to place its whole program under an agricultural banner and attempt to deal with the Committee on Agriculture.

An analysis of the 10 watershed reports now before the committee shows that the flood-control benefits of the so-called flood-control projects will vary from approximately 3 to 21 percent of the total estimated benefits. (See tables 4 and 5 for breakdown.) The remaining benefits are in a category classed as associated and are generally in the nature of increased land productivity.

TABLE 4.—*Relationship of flood-control benefits to other benefits on 10 proposed projects now before Committee on Public Works*

Basin	Average annual benefits			
	Flood control	Associated and increased productivity	Total	Flood-control benefits as percent of total
Brazos River watershed, Texas	$5,690,000	$25,345,000	$31,035,000	18.3
Sny watershed, Illinois	151,817	1,525,790	1,677,607	9.0
Pee Dee River, Va., N. C., and S. C	1,542,000	9,533,000	11,075,000	13.9
Delaware River, N. Y., Pa., N. J., Del., and Md	2,868,000	19,729,000	22,598,000	12.7
Green River, Ky. and Tenn	1,510,000	51,845,000	53,355,000	2.8
Grand (Neosho) River, Okla	1,326,000	21,454,000	22,780,000	5.8
Queen Creek, Ariz	8,400	143,260	151,660	5.6
Pecos River, N. Mex. and Tex	359,700	5,195,500	5,555,200	6.4
Scioto River, Ohio	1,669,831	18,328,136	19,997,876	8.3
Sevier Lake watershed, Utah	259,000	922,000	1,181,000	21.8

TABLE 5.—*Estimated Federal costs for 10 proposed projects pending before the Committee on Public Works*

Basin	Structures	Permanent nonstructural improvements [1]	Assistance and land management [2]	Total
Brazos River watershed, Texas	$35,560,982	$8,687,689	$24,309,010	$68,557,681
Sny watershed, Illinois	5,312,624	419,843	810,310	6,542,777
Pee Dee River, Va., N. C., and S. C	3,914,000	1,092,000	7,632,000	13,638,000
Delaware River, N. Y., Pa., N. J., Del., and Md	6,074,000	5,777,000	26,053,000	37,904,000
Green River, Ky. and Tenn	13,613,100	5,093,000	37,609,622	56,305,622
Grand (Neosho) River, Okla	9,068,926	6,391,441	35,880,416	51,340,783
Queen Creek, Ariz	910,800		196,600	1,107,400
Pecos River, N. Mex. and Tex	5,360,600	206,800	9,116,400	14,683,800
Scioto River, Ohio	3,620,747	2,517,012	5,477,451	11,615,210
Sevier Lake watershed, Utah	2,065,000	3,571,400	7,699,600	13,336,000

[1] Includes contour trenches, roads, terracing, diversions, farm waterways, etc.
[2] Includes technical and educational assistance, seeding, planting, land acquisition, fire control, woodland and pasture establishment, fence relocation, wildlife area development, testing, liming, fertilizing, etc.

The subcommittee believes that flood-control programs of the nature contemplated in the flood-control acts should continue to come before the Committee on Public Works but is opposed to having land-productivity measures, a non-public-works function, included to such a large extent.

A similar position on delineation is found in Bureau of the Budget reviews of Department of Agriculture flood-control surveys.

The Bureau of the Budget in reviewing these 10 reports has not vetoed the submission of land-management programs under flood-control law. The Bureau, however, has contended that there should be a delineation of the structural measures which directly affect flood and sediment control and the land-treatment measures.

In a review letter accompanying the Brazos River report, now pending before the committee (H. Doc. 396, 82d Cong., 2d sess.), Elmer B. Staats, Assistant Director of the Bureau, stated the Bureau's position on this delineation question:

> The measures contemplated to implement the proposed program might be grouped into two broad categories: Land-treatment measures and structural measures. The Bureau of the Budget is of the opinion that installation of the structural measures of the report (farm and group waterways, gully stabilization, floodwater-retarding structures, and floodway and channel improvements) should properly be authorized under the flood-control act, as amended and supplemented. The Bureau also believes that the land-treatment measures set forth in the report, since they are largely an acceleration of existing programs of the Department of Agriculture, should be financed under appropriations other than that for the flood-control act. This would avoid confusion in the presentation of the Department's budgetary program, since many of the current land-treatment programs of the Department have the objective of runoff and water-flow retardation and the prevention of soil erosion. To the extent that the acceleration of land-treatment measures under existing authorities is not possible, we urge that adequate authorities for such acceleration be sought through amendment of those basic authorities.
>
> Your staff, on the other hand, believes that the Department cannot properly merit its responsibilities under the flood-control act unless the full program envisioned in the report is authorized under that act. Your representatives, however, agreed that appropriations for land-treatment phases implementing the program recommended in the report, upon approval by the Congress generally on the basis as submitted, would be sought as additions to going program appropriations of the agencies carrying on the work. Funds for structural works or measures would still be requested under the appropriation "Flood control." The total obligations for land-treatment and structural measures in each authorized flood-control project area could, of course, be shown in a summary table to be presented in the program and performance section of the annual budget document.

The Secretary answered this proposal for delineation between the Department's flood-control works and its regular work. Mr. Brannan testified before the subcommittee:

> From time to time the Department has been confronted with proposals to restrict its recommendations for authorization of work under the flood-control acts to structural measures and to depend upon other programs and authorities for the land-treatment work. We oppose such a course because we feel that the recommendations and authorizations should include a complete and balanced program of all needed kinds of improvement measures on a watershed basis and that this is necessary to set the stage for a balanced schedule for installation of measures from the timing standpoint.
>
> Accordingly, it is the position of the Department that it cannot meet the responsibilities imposed upon it by the flood-control acts or conform with the intent of Congress in enacting this legislation unless its investigations, reports, and recommendations are made with a view to developing complete programs of watershed improvement and protection. The test of whether a measure should be recommended for authorization under the flood-control acts is not whether it may be carried out by this Department under some other authority than the flood-control act but whether such measure is for the purpose of runoff and waterflow retardation and soil-ersoion prevention. This is the criterion which this Department must follow in carrying out the objectives of the flood-control act. Any other approach would in our view thwart the plainly expressed intention of the Congress.
>
> In our opinion, merely stepping up the rate of appropriations for land-treatment measures is not enough. To get the right kind of job done, it is necessary to do it on a planned basis—first, a program for the entire watershed and, secondly, within the framework, work plans for individual subwatershed units. Then, on the basis of such watershed plans, we would seek appropriations to carry out the plans so that each type of measure, both the land-treatment measures and the supplemental structures, would be installed in their proper sequence and relation to one another. This is why we recommend in our survey reports all of the kinds of watershed measures that go to make up an integrated program for accomplishing the objectives of soil-erosion, floodwater, and sediment-damage prevention.

However, since the Department of Agriculture is able for these reports to which the Secretary refers to separate structural measures and flood-control benefits from other measures and other benefits, it would appear completely feasible for the Department, if it so desired, to separate flood-control public-works features. The necessity for better interagency coordination and the actual nature of the Department of Agriculture's recently proposed programs establish benches for the elimination of overlapping authorizations, a source of potential committee conflict, and for the development of more effective controls.

DISCUSSION

The subcommittee is loath merely to criticize agencies of the executive branch without recommending definite and specific steps for improvement in any problem under consideration. However, in the controversy, discussed in this report, between the Soil Conservation Service and the Department of Agriculture on the one hand and the Corps of Engineers of the Army on the other, both parties are deserving of high censure for their uncompromising attitudes and actions which have unduly alarmed and confused the residents of many areas and have wastefully delayed efficient and economic prosecution of important programs. Both upstream and downstream works have their place in a balanced conservation program. The present disgraceful conflict must be stopped and personnel willing and able to bring the two programs into harmony and to deal forth-

rightly with the committees of Congress must be placed in the responsible positions at all levels of both organizations.

The subcommittee considers the flood-control survey results of the Department of Agriculture deplorably meager and inadequate in light of the time elapsed since they have been authorized and the $18,000,000 that has been appropriated for their prosecution.

While the conflict between the two departments has been disgraceful, it is no more deplorable than the frictions appearing to exist within the Department of Agriculture. The subcommittee detects throughout the series of reports that have come to its attention a perversion of the intent of the flood-control acts and an apparent attempt to establish a permanent basis of the ACP program of the Production and Marketing Administration under the guise of flood control.

The subcommittee considers that soil conservation in itself is a most important activity. The welfare of the Nation requires that sound practices for the conservation of the fertility of the soil be undertaken. The need is sufficiently important that it does not need to be disguised as flood control. The unnecessary confusion introduced by improperly commingling the two phases of conservation must stop. The Flood Control Act of 1936 recognized that soil conservation practices would have water-flow and runoff retardation effects that would produce benefits in the nature of flood damage prevention. But the misconception that has been spread abroad that flood control can be provided solely by soil conservation practices is in some measure a responsibility of the Department of Agriculture.

The subcommittee believes that the soil-conservation program should go forward; probably at a more rapid rate than has been experienced in recent years. In many instances the soil-conservation program should be accelerated in conjunction with the flood-control program. But, the soil-conservation program is essentially a part of land management and not a proper segment of the public works program. A clear control over related activities of government seems to indicate that soil-conservation activities should be completely separated from public works and placed back in their proper sphere as a part of the national agricultural program. It is with this principal thought in mind that the subcommittee has drafted its conclusions and recommendations.

Conclusions and Recommendations

CONCLUSIONS

Water-flow retardation and soil-erosion prevention are not flood control in the accepted sense of keeping large flows of water from causing excessive damage. It is misleading to the general public for any agency to imply otherwise.

When excessive runoff from rainfall or snow melt occurs, damaging inundation of major population centers and agricultural land can be prevented only by holding the water back in reservoirs, by diverting it from its normal channel to some other locality, or by confining it to the channel by works of man.

The relationship of upstream runoff control to downstream flood-control works is a technical problem which must be solved technically.

Both phases have their proper place, but there can be only one best answer for the watershed.

The Federal departments must so conduct themselves that the general public can have confidence in and rely on them to have on their staffs competent technical people to provide technical answers to technical problems.

Reports of the Department of Agriculture and of other executive agencies made in response to specific requests of congressional committees should be sufficiently clearly phrased and transmitted so that they will respond to the specific requests and assist in parliamentary reference to the committees initiating the requests.

The executive branch should not submit technical and engineering conflicts to Congress for resolution. The Congress expects that the executive branch shall employ adequately competent personnel to resolve technical and engineering conflicts. Recommendations for the development of a single stream should contemplate a single coordinated plan. Adequate authority to coordinate the works of different executive agencies is set forth in the Budget and Accounting Act of 1921, as amended. This authority should be used.

RECOMMENDATIONS

The subcommittee recommends—

1. That legislation be enacted to cancel present directives and authority for the Department of Agriculture to make flood-contro surveys presently authorized under flood-control law or resolutions of the Committee on Public Works.

2. That no additional authorizations for examination and survey for flood control by the Department of Agriculture paralleling authorization of the Corps of Engineers be made.

3. That so much of the Flood Control Act of 1936, as amended and supplemented, as authorizes and directs the Secretary of Agriculture to cause preliminary examinations and surveys for runoff and water-flow retardation and soil-erosion prevention be repealed.

4. That the Secretary of the Army and the Chief of Engineers be authorized and directed that hereafter, in reporting upon preliminary examinations and surveys for flood control as authorized by the Flood Control Act of 1936, as amended and supplemented, and in reporting upon reviews requested by committees on public works, they include in their reports, with their comment thereon, a statement from the Secretary of Agriculture as to specific structural improvements, their costs, purposes, and benefits, recommended by him to provide related runoff and water-flow retardation and soil-erosion prevention works as supplementary to any program recommended by the Chief of Engineers.

5. That the Secretary of the Army be authorized to transfer to the Secretary of Agriculture such funds, from appropriations available to the Corps of Engineers for examinations and surveys for flood control, as may be necessary to finance the studies of the Department of Agriculture proposed in the preceding paragraph.

6. That, prior to the construction of a dam or any other structure affecting the regimen of a navigable stream or tributary thereof in connection with soil conservation or other programs of the Department of Agriculture, the Secretary of Agriculture shall obtain approval

of the Secretary of the Army for such construction, upon a finding by the Chief of Engineers that such structure will not be expected to have an adverse effect upon floods or upon flood-control works under the jurisdiction of the Department of the Army or of any other Federal agency.

7. That the Secretary of the Army and the Chief of Engineers shall take action within 60 days of the receipt by the responsible subordinate office, to be designated by the Chief of Engineers, of a request submitted by the properly designated officer of the Department of Agriculture for approval, of the nature contemplated in paragraph 6, for construction by the Department of Agriculture and that if action is not taken within 60 days it shall be deemed that the Department of the Army has no objection to the proposed construction.

8. That authority be granted to the Secretary of Agriculture, the Secretary of the Army, and the Chief of Engineers to delegate to subordinate officers, made known to each agency, the authority to act for them in the matters covered in paragraphs 6 and 7 preceding.

9. That the chairman of the Committee on Public Works provide a copy of this report to the chairman of the Committee on Agriculture.

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